

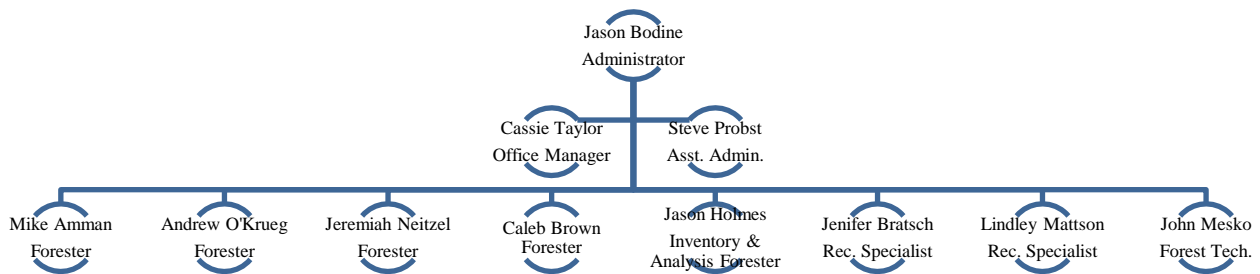
**BAYFIELD COUNTY FORESTRY AND PARKS DEPARTMENT
ANNUAL ACCOMPLISHMENT REPORT
FOR CALENDAR YEAR
2022**

FORESTRY AND PARKS COMMITTEE

Fred Strand, Chair
Jeff Silbert, Vice-Chair
Steve Sandstrom

Larry Fickbohm
Charly Ray

DEPARTMENT STAFF



LAND AREA

Below is the current amount of county forest acreage located within each Township:

| | | | | | |
|-----------|-----------|------------|-----------|-----------|----------|
| Barnes | 40,540.36 | Cable | 5,556.33 | Oriente | 4,720.00 |
| Bayfield | 32,766.15 | Clover | 5,386.57 | Port Wing | 8,876.18 |
| Bayview | 13,151.47 | Hughes | 24,660.73 | Russell | 7,402.25 |
| Bell | 15,095.03 | Iron River | 6,126.47 | Tripp | 6,539.52 |
| Namakagon | 546.80 | Grand View | 2,520.00 | Lincoln | 480.00 |
| Washburn | 80.00 | Mason | 40.00 | | |

Official County Forest Acreage: 174,487.47.

The Bayfield County Forest is the third largest county forest in the state of Wisconsin. There are approximately 1,000 acres of county tax title lands, not including lots and small parcels, in addition to the above listed county forests lands. On occasion, the Forestry and Parks Department (hereafter,

“Department”) will monitor these parcels for land and/or timber sales, potential trespass issues, and negotiate road/utility easements, as well as sand and gravel permits.

COMPREHENSIVE LAND USE PLAN

A Comprehensive Land Use Plan (hereafter, “Plan”) that will guide the management of the county forest for the next 15 years was revised throughout 2020 and early 2021 and approved by the County Board of Supervisors (hereafter, “the Board”) in April 2021. The current Plan is valid from 2021 through 2035.

In early 2022, the Forestry and Parks Committee (hereafter, “Committee”) and Board approved the Department’s 2022 annual work plan. The annual work plan gives direction and meaning to the Department’s budget, further defines and supplements the Plan, and emphasizes current goals and needs of the County Forest, Parks and Trails Programs.

FOREST MANAGEMENT

The forest management program is one of the most significant responsibilities of the Department and one of the largest (and in many years, the largest) of any county forest program in the state.

There are three major facets of the program: 1) forest management (primarily timber sale establishment and administration), 2) reforestation (natural and artificial), and 3) forest monitoring (stand and/or compartment updates). The quality and quantity of goal accomplishments, as well as the sold value of timber sales, are some of the best indicators used to evaluate performance.

For more detailed information on current goals, policies, procedures and general direction regarding the management of the county forest, please refer to the Plan, the 2023 Budget Narrative and 2023 Annual Work Plan. All documents can be found online at:
<http://www.bayfieldcounty.wi.gov/243/Plans-Reports>.

Below are the CY 2022 accomplishment summaries of the major forest management goals, priorities and objectives:

- 1) **Sustainable Timber Harvest Goals:** sustainable timber harvest goals for every major forest type are calculated based upon sound silvicultural guidelines and principles.

Existing stand information, silvicultural prescriptions, responses to previous management/treatments, reactions to insect and disease outbreaks or other natural disasters, short or long-term adjustments due to predicted or unexpected management challenges, and more, are all part of the goal development process.

Forest management accomplishments can be, and oftentimes are, influenced by the factors listed above. Sustainable harvest goals (acres) are calculated and measurable targets, but are also fairly dynamic and/or fluid in nature and, as such, are often influenced by a variety of other variables, including, but not limited to: existing stand conditions, current management direction, minor nuances/logistics associated with the timber sale establishment process (i.e. boundary line location, the presence of riparian zones or inoperable slopes, size and/or

location of the targeted stand, surrounding management history, etc.), long term projections and/or objectives, and staffing assignments/priorities.

Table 1 displays the sustainable harvest goals and accomplishments of the timber sale program by major forest type since 2017.

Table 1: Bayfield County Forest Sustainable Harvest Goals and Accomplishments (acres)

| Species | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | | 2022 | | Average | |
|----------------------------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|-------|---------|---------|---------|
| | Goal | Accomp. | Goal | Accomp. | Goal | Accomp. | Goal | Accomp. | Goal | Accomp. | Goal | Accomp. | Goal | Accomp. |
| Aspen | 1,375 | 1,416 | 1,420 | 1,394 | 1,415 | 1,521 | 1,615 | 1,894 | 1,600 | 1,783 | 1,305 | 1,432 | 1,269 | 1,327 |
| Nor. Hdwd. | 890 | 809 | 720 | 586 | 780 | 820 | 818 | 788 | 782 | 734 | 765 | 722 | 904 | 849 |
| Red Maple ¹ | 0 | 0 | 0 | 0 | 50 | 40 | 89 | 143 | 44 | 58 | 76 | 75 | 20 | 26 |
| Red Oak | 900 | 772 | 795 | 636 | 700 | 650 | 671 | 788 | 681 | 674 | 733 | 682 | 772 | 744 |
| Paper Birch | 30 | 55 | 25 | 11 | 25 | 59 | 0 | 31 | 0 | 2 | 30 | 43 | 72 | 62 |
| Scrub Oak | 215 | 227 | 255 | 291 | 210 | 236 | 235 | 267 | 214 | 256 | 232 | 131 | 195 | 235 |
| Red Pine | 915 | 912 | 930 | 850 | 960 | 1,047 | 1,030 | 1,182 | 1,071 | 1,101 | 1,135 | 1,108 | 931 | 941 |
| Jack Pine | 345 | 386 | 192 | 238 | 207 | 242 | 171 | 169 | 232 | 250 | 144 | 90 | 315 | 334 |
| White Pine | 90 | 47 | 80 | 173 | 75 | 40 | 108 | 121 | 93 | 86 | 123 | 71 | 89 | 91 |
| Fir/Spruce | 30 | 1 | 25 | 82 | 30 | 0 | 40 | 30 | 0 | 0 | 0 | 0 | 58 | 64 |
| Swamp Conifer ² | 140 | 45 | 100 | 70 | 75 | 13 | 60 | 75 | 110 | 156 | 0 | 0 | 107 | 76 |
| Swamp Hdwd. ² | 100 | 94 | 120 | 41 | 385 | 391 | 425 | 291 | 414 | 142 | 0 | 91 | 150 | 104 |
| Total | 5,030 | 4,764 | 4,662 | 4,372 | 4,912 | 5,059 | 5,262 | 5,779 | 5,241 | 5,242 | 4,543 | 4,445 | 4,876 | 4,843 |

¹ Timber type included in goals starting in 2019.

² Timber types included in goals starting in 2011.

Accomplishment Summary

As part of the timber sale program, a total of 4,452 acres of county forest land was sustainably managed in 2022. This represents a decrease of about 15% when compared to the total accomplishments for 2021. Of the total accomplishment, 4,445 acres were included as part of species timber type goals (as listed in Table 1), while 7 acres were derived from less represented timber types that are generally too small (acreage) to develop separate harvest goals for.

Total sustainable harvest accomplishments were achieved at a rate of approximately 98% of the overall goal for 2022 (or nearly equal to the sustainable harvest goal).

The management accomplishments for most major timber types fell within the targeted goal. Below is a summary of accomplishments for the major timber types.

- Aspen: 1,432 acres. The total accomplishment rate for the aspen type was roughly 110% of the management goal (over by 127 acres). The overage is primarily attributed to the increase in update acres. In general, a stand that is on the schedule for management may be updated for a variety of reasons, including, but not limited to: not ready for management; mistyped; removed from the harvest schedule (e.g. riparian management zone); or where the harvest is delayed for other management

strategies (e.g. located adjacent to a stand that was recently harvested). When considering the total amount of update acres (429) a total of 1,003 acres were managed in the form of a timber sale. Minor nuances associated with timber sale design and development were the other reasons for the difference.

- Northern Hardwoods: 722 acres. 94% of the management goal (under by 43 acres). In general, there were no significant management issues identified in the northern hardwood type in 2022. However, 81 acres was updated, rather than included as part of a timber sale. The minor difference in accomplishment goal is primarily associated with the natural nuances associated with timber sale design and development, as well as the stand updates.
- Red Oak: 682 acres. 93% of the management goal (under by 51 acres). Similar to the northern hardwood type, there were no significant management issues identified in the red oak type in 2022. However, there was a slight discrepancy in the overstory removal accomplishment. The red oak goal is separated into three distinct management/harvest groups: 1) regeneration harvest; 2) thinning; and 3) overstory removals. Overstory removals are only established when stands have achieved an acceptable level of desirable regeneration. During the timber sale development process, stands that were prescribed an overstory removal are analyzed for readiness, with a focus on regeneration. The overstory removal goal for 2022 was set at 134 acres. However, it was determined that a few stands were not ready for treatment. As a result, 76 acres of overstory removals were established in 2022. Also, most red oak stands on the forest are classified as mature or overmature. As such, in general, only the higher quality stands, with appropriate levels of density, are prescribed for a thinning. The general goal is to treat as many of these stands as possible over the next 10 years. The goal for thinning was set at 171 acres in 2022. A total of 166 acres of even-aged thinnings were established. Finally, the regeneration harvest goal was set at 487 acres in 2022. Regeneration harvests were prescribed on 455 acres. A total of 81 acres were updated, for similar reasons as described above.
- Scrub Oak: 131 acres. 56% of the management goal (under by 101 acres). Scrub oak quality is generally highly variable. On average, most scrub oak stands are over mature and exhibiting significant signs of mortality and decline. However, scrub oak provides a diversity of habitat, especially in areas otherwise dominated by conifer plantations. During the timber sale establishment process, areas exhibiting greater signs of mortality and decline are often included in adjacent sales (where smaller stands are added to other sales being established in the vicinity). One goal in 2022 was to re-inventory scrub oak stands to establish an updated priority list. Also highlighting stands that could be retained or extended to provide additional habitat and/or landscape level benefits. As a result, only stands exhibiting high mortality or risk were considered for management in 2022.
- Red Pine: 1,108 acres. 98% of the management goal (under by 27 acres). A total of 77 acres were updated in 2022, primarily natural stands that were scheduled to be regenerated. These stands will be carried longer as part of an extended rotation. The 77 acres of updates, combined with minor nuances associated with timber sale design and development, were the primary reasons for the difference.
- Jack Pine: 90 acres. 63% of the management goal (under by 54 acres). The management goal for jack pine is primarily separated into two distinct areas: 1)

stands located within the Barnes Barrens Management Area; and 2) stands located outside the Barrens. Most of the older jack pine stands located within the Barrens areas are over mature (or well past the average rotation age). As per the annual work plan, adjustments to the goal for jack pine may be needed to address rapid stand mortality or to advance the development of the Barnes Barrens Management Area (BBMA). In general, the harvest goal for the remaining stands of mature jack pine is well established over the next few years. Deviations from the planned management activities will generally only occur if there is a need to accelerate harvests due to excessive mortality, when a stand is exhibiting significant signs of decline, or to achieve a desired objective within the core area of the Barrens. Two mature stands of jack pine were held back for management within the BBMA, in coordination with DNR wildlife, to address potential habitat concerns for the Connecticut Warbler. See the Barrens section below for more information on that project.

- White Pine: 71 acres. 58% of the management goal (under by 52 acres). The goal for white pine was 123 acres. A total of 32 acres were updated. These were primarily natural stands that were scheduled to be regenerated and, similar to red pine, will be carried longer as part of an extended rotation. Minor nuances associated with timber sale design and development, were the primary reasons for the difference.
- Swamp Hardwoods: 91 acres. Starting in 2019, the harvest goal for swamp hardwood was accelerated to address the inevitable future infestations from EAB. While the goal for this type was accelerated, most of the stands with better accessibility and/or market value were established previously. The remaining stands generally contain poorer accessibility and/or merchantability. While the goal is to regenerate all of the manageable swamp hardwoods over the next few years, some stands generally won't meet minimum requirements to accommodate a commercial timber sale. As such, the harvest goal for swamp hardwoods is a generally treated as a target, with actual accomplishments highly dependent on existing conditions and whether or not the stand contains commercially viable products. Since 0 acres were scheduled due to poor accessibility and low demand, the accomplishment was over the goal by 91 acres, and primarily consisted of smaller stands being added to adjacent larger timber sales.
- Red Maple: 75 acres. Roughly 100% of the management goal (under by 1 acre). The red maple type was officially included in the harvest goals starting in 2019. A few larger stands of red maple exist, but this type is often included in other adjacent sales when an opportunity exists. Of the total 2022 accomplishment for this type, two larger stands (19 and 51 acres, respectively) were managed as part of a timber sale and 2 acres were updated.

Table 2 displays a summary of the accomplishments for the sustainable timber harvest program, from 2013 through 2022.

Table 2: Bayfield County Forest Sustainable Harvest Summary (acres)

| Year | Management Goal | Timber Sale Establishment | Stand Update^a | Total Accomplishments |
|-------------------|------------------------|----------------------------------|---------------------------------|------------------------------|
| 2013 | 4,815 | 4,348 | 517 | 4,865 |
| 2014 | 4,620 | 4,331 | 511 | 4,842 |
| 2015 ^b | 4,645 | 4,313 | 492 | 4,805 |
| 2016 ^c | 5,060 | 4,718 | 304 | 5,022 |
| 2017 ^d | 5,030 | 4,354 | 465 | 4,819 |
| 2018 ^e | 4,662 | 3,775 | 607 | 4,382 |
| 2019 ^f | 4,912 | 4,608 | 471 | 5,079 |
| 2020 ^g | 5,262 | 5,177 | 679 | 5,856 |
| 2021 ^h | 5,241 | 4,911 | 493 | 5,404 |
| 2022 ⁱ | 4,543 | 3,615 | 837 | 4,452 |
| Average | 4,879 | 4,415 | 538 | 4,953 |

^a Stands are updated, in part, due to inaccuracies in the data or insufficient growth for management.

^b Includes 24 acres of other forest types not inc on harvest goals table.

^c Includes 89 acres of storm salvage sales and 36 acres of other forest types, not inc. on harvest goals table.

^d includes 55 acres of other forest types not inc on harvest goals table.

^e includes 10 acres of other forest types not inc on harvest goals table.

^f includes 20 acres of other forest types not inc on harvest goals table.

^g includes 35 acres of other forest types not inc on harvest goals table and 618 acres of storm salvage sales.

^h includes 162 acres of other forest types not inc on harvest goals table.

ⁱ includes 7 acres of other forest types not inc on the harvest goals table.

In 2022 roughly 81% of the total accomplishment (acres) was in the form of a timber sale, while approximately 19% was updated (not included in a timber sale) for the reasons described below. This is higher than the general average for stand updates from over the past ten years (which is roughly 10%).

In general, the sustainable harvest accomplishments are in the form of a timber sale. However, there are occasions when a stand is updated and managed at a later date or removed from the management schedule altogether. Updates typically occur when a stand has not attained the predicted amount of growth in between harvests, when a stand simply isn't ready for management, when the data describing the stand is incorrect, when a stand is retained for another purpose (e.g. green tree retention, reserve islands, landscape and/or structural diversity, etc.), when the stand is removed from management due to a restrictive feature (i.e. riparian/wetland buffers or inoperable slopes) or when a harvest might be temporarily delayed for strategic purposes (e.g. located adjacent to a recent harvest or minimizing impacts to recreation).

Table 3 displays a summary of the primary reasons for stand updates in CY 2022

Table 3: 2022 Stand Update Summary

| Reason For Update | Acres |
|--------------------------|--------------|
| Riparian Management Zone | 404 |
| Incorrect Data | 273 |
| Retention | 78 |
| Not Ready | 46 |
| Recreation | 32 |
| Other | 4 |
| Total | 837 |

On average, roughly 10% of the annual sustainable harvest goal is either not ready for management, is incorrectly typed or is removed from the harvest schedule, as described above. In 2022, roughly 19% of the management goal was accomplished in the form of an update. One primary objective of the reconnaissance/monitoring program is to provide accurate, up to date information across all timber types, thus reducing incidents where stand data is incorrect.

Updating stand information, on a routine and regular basis, should significantly reduce the number of stands being removed from harvest consideration due to incorrect data. When most of the stand information has been updated, the expectation is that a higher percentage of stands will be actively managed in the future.

As part of the timber sale establishment process, a harvest goal or prescription is applied to each stand. The objective of the timber sale could emphasis developing growth and quality on trees that are retained (thinning and all-aged prescriptions) or it could target ways to regenerate the new stand (even-aged and all-aged prescriptions).

Table 4 below summarizes the general type of prescriptions applied to stands that were established as part of a timber sale.

Table 4: Summary of Management Prescriptions (acres)

| Year | General Prescription Category | | | |
|----------------|--------------------------------------|-----------------|-----------------|--------------|
| | Even-Aged | All-Aged | Thinning | Total |
| 2015 | 2,720 | 400 | 1,193 | 4,313 |
| 2016 | 3,185 | 426 | 1,107 | 4,718 |
| 2017 | 2,751 | 354 | 1,249 | 4,354 |
| 2018 | 2,366 | 312 | 1,097 | 3,775 |
| 2019 | 2,876 | 581 | 1,151 | 4,608 |
| 2020 | 3,206 | 375 | 1,596 | 5,177 |
| 2021 | 3,263 | 396 | 1,252 | 4,911 |
| 2022 | 2,142 | 319 | 1,154 | 3,615 |
| Average | 2,814 | 395 | 1,225 | 4,434 |

Over the past eight years, even-aged management treatments have been prescribed on an average of 2,814 acres; 395 acres of all-aged treatments (primarily on northern hardwood forest types) and 1,225 acres of thinning (primarily red pine and red oak forest types).

Timber Sale Program: Bayfield County offers two timber sale lettings per year, one in the spring and one in the fall. On average, roughly half of the sustainable harvest goal (that has been established as a timber sale) is offered at each letting.

Table 5 displays the summary of timber sale offerings since 2013, including the total number of sales sold per year, total acres, the total value of the winning high bids, the average bid value per acre and total revenues received from the sale of timber during each calendar year.

Table 5: Bayfield County Forest Timber Sale Summary

| Calendar Year | Sales Offered | Acres Offered | Sales Sold | Acres Sold | Acres Not Sold | Timber Sale Bid Values | Bid Value per Acre | Timber Revenues |
|--------------------|---------------|---------------|------------|------------|----------------|------------------------|--------------------|-----------------|
| 2013 | 54 | 4,275 | 53 | 4,177 | 98 | \$3,614,091 | \$865 | \$3,904,104 |
| 2014 | 61 | 4,388 | 61 | 4,388 | 0 | \$5,252,530 | \$1,197 | \$4,537,661 |
| 2015 ^a | 57 | 5,215 | 54 | 4,958 | 257 | \$6,507,887 | \$1,313 | \$5,006,565 |
| 2016 ^{bc} | 65 | 4,750 | 65 | 4,750 | 0 | \$4,745,850 | \$999 | \$5,057,393 |
| 2017 | 53 | 4,272 | 50 | 4,101 | 171 | \$3,719,320 | \$907 | \$5,009,892 |
| 2018 | 56 | 4,568 | 49 | 3,813 | 755 | \$3,509,971 | \$921 | \$4,562,243 |
| 2019 | 59 | 5,031 | 52 | 4,267 | 764 | \$4,163,432 | \$976 | \$4,171,667 |
| 2020 ^d | 68 | 5,553 | 61 | 5,052 | 501 | \$4,081,930 | \$808 | \$3,625,794 |
| 2021 | 56 | 5,002 | 48 | 4,114 | 888 | \$3,028,909 | \$736 | \$3,852,290 |
| 2022 | 60 | 4,266 | 55 | 3,993 | 273 | \$3,830,889 | \$959 | \$4,679,087 |
| Average | 59 | 4,732 | 55 | 4,361 | 371 | \$4,245,481 | \$968 | \$4,440,670 |

^a Timber revenues include \$13,506.80 generated from the management of non county forest lands.

^b Includes 89 acres of blowdown salvage sales.

^c Timber revenues include \$15,393.90 generated from the management of non county forest lands.

^d Includes 9 salvage timber sales on 618 acres.

Total outputs (new timber sales) have remained relatively constant since 2013, but the timber markets have recessed considerably, especially in 2020 and 2021 (primarily a result various market responses to the COVID-19 pandemic). While the total number of acres sold was at an all-time high in 2020, the bid values were at its lowest point since 2011 and timber revenues were at their lowest point since 2012 (again, a reflection of the COVID influenced decline in timber markets). However, the average bid value significantly increased in 2022, to roughly \$959.00/acre, which indicates that some markets may finally be recovering.

From 2015 through 2017, revenues received from the sale of wood were at an all-time high. Over \$5.0 million in timber sale revenue was received each year (an average of \$5.025 million per year). However, in 2018, timber revenues decreased by roughly 9% when compared to the amount received in 2017. A similar decline was experienced in 2019. Timber sale revenues in 2020 were roughly 13% lower than those received in 2019.

In 2021, timber sale revenues increased slightly, by a little over 6% when compared to the total received in 2020. In 2022, the increase in timber sale revenue was significant. A total of nearly \$4.68 million was received in 2022, an increase of nearly 22% when compared to 2021, and the largest return since 2017.

The level of unsold sales has been relatively consistent over the past five to six years and is primarily a reflection of poorer market conditions. Nearly all of the unsold sales are located in areas that required frozen ground conditions for most (or all) of the harvest operations. Though there was a significant decrease in unsold sales in 2022. Again, this may be an indication that markets are improving or stabilizing.

Market demand for frozen ground only sales was very poor in 2018 and remained poor in 2019 and 2020, thus contributing to the lack of interest. Also, in 2019 the market for red pine and jack pine pulp plummeted, which continued through 2021. As a result, many first thin red pine stands or those with a heavy pulp component received little or no bidding interest. This improved slightly in 2022, but the trend is expected to continue into 2023.

The timber sale bidding dynamics over the past three years (2019-2022) have also been markedly different when compared to previous offerings.

Table 6 summarizes the timber sale bidding dynamics since 2013.

Table 6: Timber Sale Bid Summary

| Year | No. of Sales Offered | Acres Offered | No. of Sales Sold | Acres Sold | Total No. of Bids | Avg No. of Bids Per Sales Sold | No. of Different Bidders |
|-------------|-----------------------------|----------------------|--------------------------|-------------------|--------------------------|---------------------------------------|---------------------------------|
| 2013 | 54 | 4,275 | 53 | 4,177 | 221 | 4.2 | 34 |
| 2014 | 61 | 4,388 | 61 | 4,388 | 357 | 5.9 | 37 |
| 2015 | 57 | 5,215 | 54 | 4,958 | 251 | 4.6 | 39 |
| 2016 | 65 | 4,750 | 65 | 4,750 | 323 | 5.0 | 39 |
| 2017 | 53 | 4,272 | 50 | 4,101 | 296 | 5.9 | 41 |
| 2018 | 56 | 4,568 | 49 | 3,813 | 190 | 3.9 | 27 |
| 2019 | 59 | 5,031 | 52 | 4,267 | 220 | 4.2 | 31 |
| 2020 | 68 | 5,553 | 61 | 5,052 | 188 | 3.1 | 25 |
| 2021 | 56 | 5,002 | 48 | 4,114 | 166 | 3.5 | 20 |
| 2022 | 60 | 4,266 | 55 | 3,993 | 173 | 3.1 | 29 |
| Average | 59 | 4,732 | 55 | 4,361 | 239 | 4.4 | 32 |

The 173 timber sale bids received in 2022 were only slightly higher than in 2021 (which was the lowest amount in the past 13 years). The average number of bids per sale and number of different contractors placing have decreased considerably since 2017. The total number of different contractors (bidders) placing a bid did increase in 2022 when compared to 2021 but is still well lower than the average prior to 2018.

As markets improve, the expectation is that acres sold, total number of bids and number of different bidders will also increase. A healthy diversity of contractors (competition) is one of the keys to optimizing potential timber sale revenues.

In general, the long-term sustainable timber harvest goals are projected to remain stable at around 4,000 to 4,500 (the harvest goal for 2023 is 4,040 acres). As previously stated, numerous variables can impact how many acres are actually established in any given year.

As of CY23, most timber markets are still considered relatively poor and predicted to remain so into the foreseeable future. Though the bidding results and timber sale revenue received in 2022 indicate some improvements. Fluctuations in stumpage prices and volatile market conditions will have an impact on timber sale revenues. Revenues for 2023 (and into the future) are directly associated with the value of sales currently under contract, as well as the value of new sales sold.

If current trends persist, future timber sale revenues will likely hover between \$3.0 million to \$4.0 million per year, which is a significant decrease from the average received over the past five years (roughly \$4.2 million).

Timber Sale Contracts

In 2022, the Department awarded 55 new timber sale contracts, covering 3,933 acres, with a total bid value of \$3,830,889 (\$974/acre).

Table 7 summarizes the new contracts awarded in 2022 by sale type:

Table 7: 2022 Timber Sale Contracts (per Award Type)

| Type | Total | Acres | Value | Value/Acre |
|---------------------|--------------|--------------|--------------------|-------------------|
| Traditional | 53 | 3,663 | \$3,756,008 | \$1,025.39 |
| Direct ¹ | 2 | 270 | \$74,881 | \$277.34 |
| Total | 55 | 3,933 | \$3,830,889 | \$974.04 |

¹ Sales are available for direct purchase when they receive no bids after one traditional offering.

Total timber sales awarded in 2022 increased slightly when compared to 2021, but total acreage sold decreased. However, the total winning bid values (per acre) increased by roughly 30% when compared to 2021.

Annual stumpage revenues are generated, almost exclusively, from previously awarded timber sale contracts. Revenues generated from forest products harvested on every timber sale are based solely upon the bid price per product per species as listed in each contract. In general, all timber sale contracts are awarded on a two-year basis, meaning a contractor has two years to complete the harvest.

However, the Department will also routinely grant contract extensions. Each contract extension adds one year to the length of the contract. It's not uncommon for a contractor to be granted one or two extensions. In some instances, three and up to four, one-year extensions have been granted. On rare occasions, where warranted, a fifth extension may be granted. In 2020, 2021 and 2022, all timber sale contract extensions were awarded with no stumpage price increases, primarily due to the significant decrease in markets. Stumpage

price increases will resume in 2023, but only on timber sale purchased post Covid influenced market decline and after the WI Rapids mill closure, so all contracts sold from fall 2020 to current would be subject to the standard extension process.

In summary, it can take up to four years or longer before a timber sale contract has been completed. Markets play a major role on when timber sales go active, but, on average, roughly 75% of all sales are completed within the initial two-year contract period.

Revenue from a significant percentage of sales sold in 2022, as well as some to be sold in the upcoming year, will be received in 2023 (see the section on Timber Sale Revenue Model for more information on the timing of stumpage revenue).

Timber Sale Activity

Timber sale activity occurs in a variety of forms, including, but not limited to: pre-sale meetings, timber harvesting, forwarding, scaling, hauling, road building, contract extensions, accounts management, contract close-out requirements, and more. When any action occurs on a given contract, it's classified as active.

Table 8 below summarizes timber sale activity on the forest since 2013.

Table 8: Summary of Annual Timber Sale Activity¹

| Year | Offered | Sold | Active² | Completed^{3,4} |
|----------------|----------------|-------------|---------------------------|--------------------------------|
| 2013 | 54 | 53 | 89 | 43 |
| 2014 | 61 | 61 | 97 | 64 |
| 2015 | 57 | 54 | 89 | 62 |
| 2016 | 65 | 65 | 93 | 41 |
| 2017 | 53 | 50 | 94 | 58 |
| 2018 | 56 | 49 | 80 | 56 |
| 2019 | 59 | 52 | 88 | 47 |
| 2020 | 68 | 61 | 95 | 50 |
| 2021 | 56 | 48 | 91 | 49 |
| 2022 | 60 | 55 | 92 | 57 |
| Average | 59 | 55 | 91 | 53 |

¹ Total number per activity per year.

² Includes active harvesting, hauling, scaling, payments, close-out activities, etc.

³ Once all contract obligations have been met, a timber sale is officially closed.

⁴ in late 2009/early 2010, a large backlog of completed sales were all closed-out at once.

A total of 92 timber sales were active in 2022. Since 2013, an average of roughly 91 timber sales are active during the year. This is a stark contrast to pre-2012 activity levels, which averaged about 52 per year (an increase of nearly 70%). Timber sale activity can last anywhere from a period of a few days or weeks, to a few months, to most of a year, depending on the size of the sale, harvesting restrictions, operating conditions and the general goals of the contractor.

Harvested timber sale volumes are tracked and summarized within the Department’s timber sale management system (customized Access database). When a timber sale is active, all harvested volumes are either tracked via a haul ticket or scaled in the field by Department staff.

Table 9 summarizes the amount of haul/mill tickets and field scales that were accomplished since 2015.

Table 9: Haul Slip (Ticket) and Field Scale Entries per Year¹

| Year | Tickets² | Field Scales³ | Total Entries |
|-------------|----------------------------|---------------------------------|----------------------|
| 2015 | 6,615 | 921 | 7,536 |
| 2016 | 6,938 | 878 | 7,816 |
| 2017 | 7,414 | 713 | 8,127 |
| 2018 | 7,819 | 833 | 8,652 |
| 2019 | 6,441 | 774 | 7,215 |
| 2020 | 6,457 | 748 | 7,205 |
| 2021 | 6,774 | 633 | 7,407 |
| 2022 | 7,116 | 667 | 7,783 |
| Average | 6,947 | 771 | 7,718 |

¹ Pulpwood and log volumes are processed within the Departments timber sale management system.

² Pulpwood volumes hauled from a timber sale are tracked via a ticket and associated mill slip.

³ Logs and some pulpwood are scaled on site by Department staff prior to hauling.

Nearly all pulpwood that is harvested and hauled as part of a timber sale is tracked with a ticket. The contractor fills out a ticket with the estimated volume of each load and puts a copy in a ticket box (which is located at the job site). Another copy of the ticket follows the load to the mill. The Department collects the tickets from the box and enters the estimated volume into the accounting system/database. Invoices are generated based on the estimated volume. When the load is processed at the mill, a copy of the ticket and actual mill volume are sent back to the Department. The actual mill volumes are then entered into the database. When the sale is finished and the last mill slip has been entered, the contract ledger is reconciled and a final bill (or refund) is generated.

All logs are scaled in the field by Department staff. These volumes are also entered into the Department’s database and generally do not require any additional processing (no tickets are involved). On occasion, pulpwood piles are also scaled in the field by Department staff.

The information presented in Table 9 represents the total number of tickets and field scales administered during each year. Since information on each pulp ticket is entered twice (once for the estimated volume and once for the mill volume), the actual data entry workload associated with ticket entry is twice the value listed in the table.

As of the end of CY 2022, the Department had 138 timber sales under contract, with 33 different contractors and a total contract value of roughly \$9.5 million. During any point in the year, anywhere from around 10 to upwards of 20, or more, timber sales can be active at one time.

Timber Sale Revenue Model

When analyzing timber sale revenues and the results from previous timber sale offerings, general patterns develop that allow the Department to estimate when to expect proceeds from existing contracts. In general, roughly 40% of the revenue generated during any calendar year comes from contracts sold during the previous year. Approximately 30% is derived from those sold during the current year, 15% from two years prior, 10% from three years prior and the rest beyond that. The percentages can vary slightly from year to year, but generally follow this same pattern.

For example, based on the above model, the general expectation is the 30% of the revenue generated in 2023 will come from sales sold in 2023; 40% from sales sold in 2022; 15% from sales sold in 2021; 10% from sales sold in 2020 and the rest from 2019 and earlier.

Markets in 2020 and 2021 were significantly impacted by Covid-19. This included the shut down of two significant Verso pulp mills (located in Wisconsin Rapids and Duluth, MN). At peak capacity, the Rapids mill had the potential to consume nearly 25% of all pulp products produced in the state of Wisconsin.

While the Duluth Mill has been repurposed to primarily consume recycled materials, the mill in Rapids remains closed. The Duluth mill closure had more of a direct impact on local stumpage prices, but the closure of the Rapids mill had a major influence on prices across the entire region.

Harvested Volume

Table 10 below displays the total volume of timber harvested from Bayfield County Forest timber sales from 2018 through 2022. Pulp (cords) and logs (Mbf – thousand board feet) are displayed for each primary timber type. For the sake of comparison, all sales sold by the ton were converted to cords.

Table 10 also displays the total amount of timber sale revenue received each year, as well as cord equivalents (which converts logs into cords in order to provide a general overview/summary of the entire program).

Table 10: Timber Harvest Volume Summary (pulp in cords and logs in thousand board feet)

| Species | 2018 | | 2019 | | 2020 | | 2021 | | 2022 | | Average | |
|--------------------------------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|
| | Pulp | Logs | Pulp | Logs | Pulp | Logs | Pulp | Logs | Pulp | Logs | Pulp | Logs |
| Aspen | 29,704 | 0 | 26,170 | 0 | 20,419 | 0 | 23,878 | 0 | 25,245 | 0 | 25,083 | 0 |
| Mx. Hardwood ¹ | 20,474 | 482 | 21,913 | 597 | 20,024 | 534 | 20,541 | 538 | 23,392 | 875 | 21,269 | 605 |
| Oak | 14,101 | 2,274 | 11,316 | 2,042 | 9,120 | 2,852 | 8,296 | 1,937 | 7,997 | 2,280 | 10,166 | 2,277 |
| Paper Birch | 718 | 33 | 285 | 25 | 103 | 1 | 357 | 0 | 23 | 0 | 297 | 12 |
| Basswood | 720 | 111 | 957 | 211 | 727 | 164 | 833 | 147 | 1,204 | 178 | 888 | 162 |
| Red Pine | 9,376 | 0 | 7,585 | 0 | 11,115 | 0 | 14,764 | 0 | 21,039 | 0 | 12,776 | 0 |
| Jack Pine | 5,334 | 0 | 4,573 | 0 | 3,228 | 0 | 1,632 | 0 | 2,180 | 0 | 3,389 | 0 |
| White Pine | 465 | 0 | 276 | 0 | 141 | 0 | 954 | 0 | 457 | 0 | 459 | 0 |
| Other Conifer ² | 6,369 | 0 | 4,138 | 0 | 2,659 | 0 | 8,462 | 0 | 2,193 | 0 | 4,764 | 0 |
| Total | 87,261 | 2,900 | 77,213 | 2,875 | 67,536 | 3,551 | 79,717 | 2,622 | 83,730 | 3,333 | 79,091 | 3,056 |
| Total Cord Equiv. ³ | 93,641 | | 83,537 | | 75,348 | | 85,485 | | 91,063 | | 85,815 | |
| Revenue | \$4,562,243 | | \$4,171,667 | | \$3,625,794 | | \$3,852,290 | | \$4,679,087 | | \$4,178,216 | |

¹ Sugar Maple, Red Maple, Yellow Birch, Black Ash, White Ash.

² White Spruce, Black Spruce, Balsam Fir, Tamarack, Mixed Conifer.

³ Log volumes converted to cords and added to the pulp volume.

In 2022, nearly 84,000 cords and a little over 3,300 MBF were harvested from the county forest. While the pulp volume increased by roughly 5% when compared to 2021, the log volume decreased by approximately 27%.

Aspen is the largest primary forest type on the county forest (by total acreage). Not surprisingly, it also comprises the largest volume of wood harvested from the forest. The amount of aspen volume harvested in 2022 was over 25,000 cords. This was roughly 6% greater than 2021 and close to the 5 year average. However, in general, the volume of aspen harvested from the forest has steadily increased over the past decade (averaging roughly 14,500 cords prior to 2013). The increase in harvested aspen volume is directly related to the steady, but gradual increase in the sustainable harvest goal for aspen.

The mixed hardwood pulp volume harvested in 2022 increased by roughly 14% and logs by 64% when compared to 2021. Mixed hardwood is generally comprised on sugar maple, red maple, yellow birch, white ash and black ash.

The total volume of red oak pulp harvested in 2021 continued a relatively significant downward trend that started in 2019. The total amount of red oak pulp harvested in 2021 was roughly 9% less than 2020 and a little over 27% less than 2019. Poor oak pulp markets are the primary reason for the decrease in volume. The volume of oak logs harvested in 2021 also decreased significantly when compared to 2020. A total of 1,937 Mbf of oak was harvested in 2021, which was a decrease of roughly 32% when compared to 2020. Red oak continues to be the dominant species when analyzing total log volume harvested during any period of time. Roughly 74% of the total log volume harvested in 2021 was from red oak.

Harvested red pine volume continues to increase. Red pine pulp experienced the most significant increase in harvested volume in 2022, at nearly 43% when compared to 2021. This is a good indication that red pine pulp markets are starting to improve.

With the exception of the spikes in total cords harvested in 2013 and 2017, jack pine volume has remained relatively constant over the past decade, generally hovering around 5,300 cords. However, as the Barnes Barrens Management Area begins to take shape, most of the mature jack pine stands in that unit have been managed. As a result, the amount of jack pine harvested has steadily declined over the past few years. The 1,632 cords harvested in 2021 was the lowest volume of jack pine in nearly two decades. There was a slight increase in jack pine harvested in 2022, but as less acreage of jack pine is managed over the next few years, the amount of harvested volume is expected to continue on a downward trend.

Table 11 includes a summary of cord equivalents. This converts the log volume to cords as an attempt to simplify/quantify the total amount of wood harvested annually.

Table 11: Total Volume of Wood Harvested (2013-2022)

| Year | Pulp (cords) | Logs (Mbf) | Cord Equivalents* |
|----------|--------------|------------|-------------------|
| 2013 | 81,024 | 1,939 | 85,291 |
| 2014 | 93,321 | 3,084 | 100,107 |
| 2015 | 83,023 | 3,042 | 89,715 |
| 2016 | 82,372 | 3,796 | 90,723 |
| 2017 | 85,214 | 2,838 | 91,458 |
| 2018 | 87,261 | 2,900 | 93,641 |
| 2019 | 77,213 | 2,875 | 83,537 |
| 2020 | 67,536 | 3,551 | 75,349 |
| 2021 | 79,717 | 2,622 | 85,485 |
| 2022 | 83,730 | 3,333 | 91,063 |
| Average | 82,041 | 2,998 | 88,637 |
| 5 Yr Avg | 79,091 | 3,056 | 85,894 |
| 3 Yr Avg | 76,994 | 3,169 | 83,966 |

* Converting Mbf to cords and combining pulp and log values.

Total cord equivalents harvested in 2022 was just over 91,000. This represents an increase of about 7% when compared to the total for 2021 and well above both the three and five year averages. Prior to 2013, the average was about 61,000 cord equivalents.

Starting in 2021, the pulpwood volumes on all new timber sales are being advertised and sold by the ton. This was done to better align with how most mill volumes are reported to the county (which are primarily in tons), reduce the need to convert quantities from one measure to another (cords to tons or vice versa) and improve internal efficiencies associated with processing harvested volumes.

- 2) **Reforestation Program:** reforestation, be it natural or artificial, is a core building block of forest sustainability and a fundamental component of any forest management program. A

successful reforestation program provides numerous benefits, some of which include: the restoration of forest productivity, fertility and environmental function; the assurance of a perpetual, sustainable supply of forest resources and amenities for future generations; the protection of soil and water quality; and the establishment and development of quality wildlife habitat. Newly regenerating stands are typically monitored 3 to 4 times, and sometimes more, over a 10-year period, to determine success.

Table 12 displays the summary of the reforestation program from 2018-2022.

Table 12: Bayfield County Forest Reforestation Program Summary (acres)

| Year | Planting | | | Seeding | Site Preparation | | | | Maintenance | | Monitoring |
|------|----------|-----------|------------|------------------------|------------------|-----------|---------|--------------------|-------------|------------------|------------|
| | Red Pine | Jack Pine | White Pine | Jack Pine ³ | Trench | Fire Plow | Scarify | Spray ⁴ | Bud Cap | TSI ² | Regen |
| 2018 | 134 | 0 | 0 | 563 | 257 | 0 | 154 | 296 | 38 | 0 | 5,408 |
| 2019 | 92 | 0 | 3 | 216 | 305 | 10 | 112 | 323 | 8 | 0 | 5,834 |
| 2020 | 104 | 0 | 0 | 497 | 355 | 26 | 165 | 277 | 0 | 0 | 4,010 |
| 2021 | 124 | 0 | 0 | 291 | 363 | 0 | 46 | 848 | 0 | 0 | 3,434 |
| 2022 | 273 | 0 | 0 | 368 | 278 | 20 | 0 | 252 | 0 | 44 | 2,882 |
| Avg. | 145 | 0 | 1 | 387 | 312 | 11 | 95 | 399 | 9 | 9 | 4,314 |

² Timber Stand Improvement - Hand release of established regeneration

³ Includes 110 acres of white pine in 2020 and 20 acres in 2021.

⁴ in 2021, includes 323 acres for red and/or jack pine, and 525 acres for barrens work.

⁴ In 2022, includes 116 acres for red and/or jack pine and 136 acres for barrens work.

- a) **Planting:** a total of 273 acres, on four different sites, were planted in 2022. All sites were planted at a rate of about 800 red pine seedlings per acre. All seedlings were 2-0 containerized stock and planted by contracted crews. A total of nearly 220,000 red pine seedlings were planted in 2022.

An Arbor Day grant in the amount of \$39,252 was awarded in 2022. This grant was used to help offset the costs associated with all seedlings planted in 2022.

The artificial reforestation program has experienced some transformations over the past decade, which will continue into the foreseeable future, resulting in significantly less acreage being planted. In general, the primary reasons for the changes are as follows: re-planting of the old fuel break areas has been completed; a general lack of previously open area, which, in the past, were planted to red pine; a lack of mature stands of red pine that are ready for reforestation; movement towards an emphasis on jack pine regeneration in the Barnes Barrens Management Area; an emphasis on seeding when attempting to regenerate jack pine; and a significant decrease in stands that were severely defoliated from a significant outbreak of jack pine budworm in the early 2000's.

- b) **Seeding:** A total of 368 acres were seeded with jack pine in 2022. This was a slight increase when compared to 2021. A total of 7 different sites were seeded, all at a rate of about 3 ounces per acre (with local seed purchased from the WDNR nursery). A total of roughly 70 pounds of jack pine seed was applied in 2022.

The jack pine seeding rate was reduced from 4 ounces per acre applied during one year, to 3 ounces per acre applied during two consecutive years. The primary goal of the change is to increase the probability of achieving a fully stocked stand of jack pine.

All seed applications are performed aerially, via a contract with the DNR. All jack pine seeded acres were previously trenched (two years prior) and sprayed (one year prior) to provide the best possible site for germination and recruitment. All planted and seeded sites are monitored on a routine and regular basis to determine success (see Forest Monitoring section below).

- c) Site Preparation: to prepare sites for future planting or seeding, a total of 278 acres were power trenched (for artificial reforestation) and 20 acres were fireplowed (by the DNR). In addition, a total of 252 acres were treated with chemical to reduce potential competition for undesirable vegetation. Of the total chemical treatments completed in 2022, 116 acres are to be reforested (to either red or jack pine), while 136 acres are in preparation for barrens development in the Bass Lake Barrens Management Area. A total of 550 acres were prepared in 2022. This was a decrease of more than half when compared to the total acres prepped in 2021 (1,257 acres), primarily because of the significant decrease in chemical work.
- d) Maintenance: in 2022, 44 acres of timber stand improvement (TSI) was accomplished, primarily within regenerating northern hardwood stands, with a focus on treating gaps or groups. A total of roughly 115 gaps, groups and/or patches were treated, where undesirable regeneration (e.g. ironwood) was cut to release the more desirable target species (e.g. sugar maple, red oak, yellow birch, basswood, etc). Stands will be monitored to determine success. Competition from undesirable tree species is a common and developing problem within stands managed with all-aged treatments. It is anticipated that TSI will become a more regular means of facilitating natural regeneration throughout many hardwood forest types.

Currently, most plantations are treated with herbicide prior to planting (see above), which, in combination with mechanical preparation, creates an exceptional site for young seedlings to develop, thus eliminating the need for release. In some instances, release may still be required. However, the goal is to significantly reduce the need for release by treating future plantations prior to planting. Releasing young seedlings increases the risk of damage from herbicide, something we hope to eliminate by treating sites prior to planting. As previously stated, a total of 136 acres located within the barrens management areas were treated with herbicide to facilitate the development of barrens habitat. These are expected to be one-time treatments, with all future maintenance work accomplished via prescribed fire.

A total of 0 acres of young jack pine plantations were treated with terminal bud caps to deter browsing from white tailed deer. This marks the third year in a row that bud capping was not required. However, it is anticipated that bud capping will resume in 2023 due to an increase in significant browse pressure.

Previously, all bud capped jack pine sites were reforested via planting. It is believed that since nursery grown jack pine seedlings are very nutrient rich, they are more attractive to, and targeted by, deer as a food source. But, since 2013, the Department has seeded far more acres of jack pine than planted. Until recently, seeded sites have not exhibited the same level of browse pressure and, as such, were not expected to require additional measures of protection.

However, recent seedling counts have indicated extremely high levels of browsing on numerous seeded jack pine sites. Bud capping will most likely be required on many of these seeded sites in the future. Some planted red pine sites are also showing signs of excessive browse. All stands are monitored on a regular basis and additional protections may need to be incorporated if significant browsing is discovered.

More Information on Reforestation

As previously stated, reforestation can be accomplished by either natural or artificial means. Table 12 above tracks annual reforestation accomplishments, but primarily as they pertain to artificial regeneration or when additional inputs are/were required by the Department (i.e. site preparation, release, bud capping, etc.).

Every stand that is managed by the Department is ultimately reforested. However, not all treatments are regeneration harvests. Some stands are thinned, where a smaller portion of the trees are removed, typically with the goal of improving development on higher quality stems. Termed even-aged thinnings (also improvement or intermediate harvests), these treatments generally target the removal of the poorest quality trees; those that exhibit poor form and/or vigor; and undesirable, diseased or otherwise unhealthy individuals.

During the thinning process, trees are also removed to improve the development of adjacent higher quality stems, that are competing for the same limited resources i.e. light, nutrients, water, etc. Stands that are managed with even-aged thinning practices are ultimately regenerated, but only when approaching the designated rotation age for that species.

Natural regeneration (either from seed or vegetatively via root suckers or stump sprouts) is the preferred method of reforestation in all hardwood types (i.e. aspen, birch, northern hardwood, oak), as well as some stands of conifer (primarily swamp conifer i.e. tamarack and black spruce, as well as some stands of white pine).

Hardwood types such as red oak and paper birch are reforested primarily with even-aged treatments (i.e. shelterwood, seed tree and/or clearcut) and typically require additional inputs from the Department to facilitate the natural regeneration process. Site preparation, competition control, the manipulation of light, timing of seed dispersal, etc all need to be considered when regenerating red oak and white birch. As a result, the reforestation process is monitored more intensively in these stands, as regeneration can be highly variable and the Department may need to act quickly if the stand is not responding to the treatment.

Hardwood types such as northern hardwood (typically dominated by sugar maple, with co-dominants of basswood and sometimes yellow birch) can be managed with even or un-even aged techniques. Maple isn't as fickle as red oak and typically doesn't require additional inputs from the Department to encourage adequate regeneration. However, when implementing un-even aged treatments (i.e. when gaps or small groups are incorporated to initiate a new cohort or age class), the Department is discovering some challenges with the process of natural regeneration.

On moderate or poorer quality sites, competition from ironwood has been a growing concern. Deer exacerbate this issue, as repeated browsing of the desirable regeneration (i.e. sugar maple, basswood, red oak, the birches, etc.) slows growth (and can eventually kill the tree) and allows less desirable or undesirable (i.e. ironwood) species to attain and maintain dominance. Once less desirable species attain dominance, development and growth of the stand is stagnated and future management potentially altered.

Gaps or groups comprise a relatively small percentage of the stand (typically 10 to 25%), so it doesn't take a large population of deer to eventually locate and browse the seedlings. As a result, most northern hardwood stands that are treated with gaps or groups are monitored intensively. Additional inputs may be required to facilitate the natural regeneration of desirable hardwood seedlings and the development of the stand.

Other hardwood types, such as aspen, regenerate prolifically after harvest and rarely require additional inputs or follow-up from the Department. These stands are regularly monitored as part of the Department's reconnaissance program. However, due to concerns with the potential impacts of a warming climate, the Department is in the process of establishing a more intensive monitoring program for regenerating stands of aspen.

Quaking aspen has been identified as one of many timbers type that could be negatively impacted due to changes in the climate. Stands developing on marginal sites are more inherently stressed and could be most at risk (i.e. sites that are nutrient poor). Monitoring will cover a cross section of habitat types, but will prioritize stands developing on sites classified, by the Department, as marginal or nutrient poor.

Table 13 summarizes the general management or reforestation goals for every completed (closed out) sale from 2013 through 2022 (total sales sold are also included). Management is basically categorized in one of three ways: 1) with natural regeneration as the reforestation goal; 2) with artificial regeneration as the reforestation goal; or 3) as an even aged thinning (or intermediate treatment), where reforestation will come at a later date.

Table 13: Summary of Treatments and Reforestation Activities on Completed Timber Sales (acres)

| Year | Natural Reforestation ¹ | Artificial Reforestation ² | Thinnings ³ | Total Completed Sales | Total New Sales Sold |
|---------|------------------------------------|---------------------------------------|------------------------|-----------------------|----------------------|
| 2013 | 1,215 | 830 | 866 | 2,912 | 4,177 |
| 2014 | 3,032 | 1,113 | 1,075 | 5,219 | 4,388 |
| 2015 | 3,127 | 1,053 | 586 | 4,766 | 4,958 |
| 2016 | 1,570 | 830 | 492 | 2,892 | 4,750 |
| 2017 | 2,176 | 1,044 | 872 | 4,092 | 4,101 |
| 2018 | 2,493 | 1,183 | 571 | 4,247 | 3,813 |
| 2019 | 2,144 | 455 | 723 | 3,322 | 4,267 |
| 2020 | 2,399 | 567 | 671 | 3,637 | 5,052 |
| 2021 | 1,952 | 906 | 974 | 3,832 | 4,114 |
| 2022 | 2,386 | 617 | 1,289 | 4,292 | 3,993 |
| Average | 2,249 | 860 | 812 | 3,921 | 4,361 |

¹ Natural reforestation refers to stands that will regenerate via seed located naturally on site, or vegetatively via coppicing or stump sprouts.

² Artificial reforestation refers to stands that will be physically planted or seeded by the Department.

³ Thinnings encompass stands that were treated with even aged prescriptions (or intermediate harvests). These stands are eventually reforested (either naturally or artificially), at a later date, as per the designated rotation age for that particular timber type.

A timber sale is considered completed when every component of the contract has been met, to the satisfaction of the Department. This includes, but is not limited to, harvesting, hauling and stumpage payments, as well as all road maintenance and/or closure or other similar requirements.

Timber sales are sold under two year contracts and can be extended for another two to three years (and sometimes more). At any point during the contract period, a timber sale can go active. Once active, it is common for a contractor to harvest a portion of the sale and then move off, leaving more to address at a later date. It's also common for contract activity to carry over into another calendar year. A timber sale can still be classified as active even if all harvesting, hauling and stumpage payments have been met, but other contractual obligations are still outstanding i.e. road work or other similar requirements.

In Table 13, the acres of completed sales are highly variable, ranging from a low of 2,892 in 2016 to a high of 5,219 in 2014. However, the total acreage of sold timber sales is generally relatively constant. It is also common for significant portions of a sale to be complete, but only remain open to satisfy a specific contract requirement or to remove a few loads of wood.

Of the completed sales (an average of 3,921 acres since 2013), a vast majority are prescribed to regenerate naturally, with an average of 2,249 acres per year (or over 57%). An average of 860 acres are prescribed for artificial reforestation (approximately 22%) and 812 acres are treated with even-aged thinnings or intermediate treatments (approximately 21%). Red pine and red oak are the two most prominent timber types that receive even-aged thinnings (or intermediate treatments).

- 3) **Forest Monitoring Program:** forest inventory and reforestation/regeneration monitoring are vital components of any sound, sustainable forest management program. Accurate, up-

to-date stand information is essential in the development of viable short and long term sustainable harvest goals. A successful regeneration program is paramount in the development of the next forested ecosystem. The accuracy of any sustainable harvest goal is only as good as the data from which it was derived. Monitoring stands, whether mature or newly regenerating, on a routine and regular basis is an essential element of the forest management process.

The forest monitoring program has evolved significantly over the past few years. In the past, the primary forms of forest monitoring focused on compartment level stand updates (or reconnaissance) and artificial reforestation surveys. Forest reconnaissance, or updating stand information, on a compartment level basis has been a staple component of the program for the past two decades. Today, in addition to compartment level inventory and artificial reforestation monitoring, forest type (stand level) inventory and natural regeneration monitoring (FRM and CRS, see below) have been added to the program. Each facet of the monitoring program is summarized below.

- a) Compartment Level Reconnaissance. Starting in 2001, the goal was to update roughly 10,000 acres of forest annually, until all compartments have been re-inventoried, and then repeat the process. By targeting individual compartments (which range from a few hundred acres in size to a few thousand), efforts could be directed to one general area, thus increasing efficiency and also allowing for the incorporation of smaller landscape level management decisions.

At nearly 175,000 total acres, a complete re-inventory of the county forest was estimated to take 17 to 18 years. The last inventory cycle was finished in 2018 and took a full 18 years to complete.

Table 14 displays the summary of compartment/stand updates from 2013 through 2022.

Table 14: Compartment Inventory Summary (acres)

| Year | Number of Compartments | Accomplishment |
|-------------|-------------------------------|-----------------------|
| 2013 | 10 | 9,316 |
| 2014 | 8 | 5,014 |
| 2015 | 7 | 5,320 |
| 2016 | 6 | 5,784 |
| 2017 | 6 | 4,107 |
| 2018 | 9 | 8,613 |
| 2019 | 0 | 0 |
| 2020 | 13 | 12,172 |
| 2021 | 21 | 17,166 |
| 2022 | 10 | 7,481 |
| Average | 10 | 8,406 |

The re-inventory cycle was started again in 2020. A total of 10 compartments and 7,481 acres were inventoried in 2022. The long-term goal is to re-inventory the county forest over the next 15 years.

- b) Stand Level Inventory. In addition to compartment level inventories, the Department occasionally targets updated stand level information across various primary forest types. Generally, the reasons for obtaining current information across a primary forest type are varied and can include: prioritizing management across stands that are generally all the same age; prioritizing regeneration harvests; fine tuning prescriptions to more accurately determine short and long term sustainable harvest goals; and monitoring health and vigor to determine when management is necessary (especially important on over mature stands). For a variety of reasons, additional stand information is collected to help in the overall decision making process.

The focus of stand level monitoring, across a forest type, is generally on mature stands, where information is required to assist in short or long term management level decisions, as described above. Stand level monitoring began in earnest in 2014, when mature jack pine stands were prioritized.

Table 15 summarizes primary forest type inventory efforts since 2014.

Table 15: Primary Forest Type (Stand Level) Inventory Summary (acres)

| Year | Jack Pine | Red Pine | Oak | Northern Hardwood | Swamp Hardwood | Aspen | White Birch | Scrub Oak | Other | Total |
|--------------|--------------|------------|--------------|-------------------|----------------|--------------|-------------|--------------|------------|---------------|
| 2014 | 2,002 | 0 | 3,260 | 0 | 0 | 0 | 0 | 0 | 0 | 5,262 |
| 2015 | 0 | 0 | 5,423 | 2,187 | 0 | 0 | 0 | 0 | 0 | 7,610 |
| 2016 | 0 | 0 | 439 | 843 | 0 | 0 | 0 | 0 | 0 | 1,282 |
| 2017 | 0 | 0 | 0 | 4,269 | 104 | 0 | 0 | 0 | 0 | 4,373 |
| 2018 | 0 | 0 | 0 | 2,462 | 1,392 | 0 | 0 | 0 | 0 | 3,854 |
| 2019 | 0 | 721 | 0 | 0 | 0 | 4,975 | 0 | 0 | 0 | 5,696 |
| 2020 | 705 | 15 | 0 | 124 | 92 | 0 | 0 | 0 | 81 | 1,017 |
| 2021 | 0 | 13 | 55 | 0 | 0 | 101 | 97 | 0 | 47 | 313 |
| 2022 | 0 | 109 | 0 | 0 | 588 | 26 | 0 | 2,238 | 33 | 2,994 |
| Total | 2,707 | 858 | 9,177 | 9,885 | 2,176 | 5,102 | 97 | 2,238 | 161 | 32,401 |

Red oak and northern hardwood were prioritized in 2015 and 2016. And northern hardwood inventory continued in 2017. In 2018, 2,462 acres of northern hardwood (completing the inventory of the mature stands) and 1,392 acres of swamp hardwood were inventoried.

In 2019, the focus shifted to stands of aspen and red pine. Aspen stands were selected due to concerns with the potential presence of hypoxylon, which can lead to mortality and poor growth. Through a GIS analysis using a canopy height model developed internally with LiDAR info, the Department was able to locate stands that were potentially underperforming (or developing well below standard growth

charts). The presence of hypoxylon was noted on a few stands during previous examinations. A total of 4,975 acres were inventoried. Fortunately, none of these stands contained excessive levels of hypoxylon and were just developing on poorer quality sites.

Also in 2019, 721 acres of red pine was inventoried in Zone 4 of the Barnes Barrens. These stands were targeted to help develop the final harvest strategies in that Zone. Updated stand information will help the Department determine which stands to prioritize first as some of the last mature red pine is converted to jack pine in the Zone.

In 2020, a total of 1,017 acres of stand level inventory was accomplished. The primary emphasis was jack pine stands located in the Barnes Barrens Management Area (BBMA). Mature stands were re-analyzed for mortality and subsequent timing of future harvest. Other stands of jack pine in the BBMA were evaluated to determine the appropriate timing for harvest within each Zone. Additional stands of northern hardwood and swamp hardwood were also addressed in 2020.

In 2021, a particular forest type was not targeted for re-inventory. Instead, more resources were dedicated to compartment updates. As a result, there was a significant decrease in the amount of acres updates at the stand level.

Scrub oak was targeted in 2022. Primarily to establish treatment priorities, as well as habitat and/or landscape level significance. Stands of scrub oak that were exhibiting poor health or higher levels of mortality will be treated sooner. However, an emphasis was placed on locating stands of high habitat and/or landscape value and extend rotations when possible. This is of particular importance in areas otherwise dominated by conifer plantations, where stands of mature scrub oak provide a significant diversity of habitat. Stands of swamp hardwood were also re-examined as it pertained to evaluating for EAB impacts and marketability.

- c) Artificial Reforestation Monitoring. Artificial reforestation pertains to all sites that were planted or seeded. All sites that are reforested with artificial means are monitored on a routine and regular basis, to ensure the stand is developing as intended. On planted sites, monitoring occurs every 1,2,3,5 and 10 years after planting. After the 10 year, assuming the reforestation activity was successful, the stand is release from intensive regeneration monitoring and will be observed as part of the various management processes (i.e. compartment level inventory, timber sale establishment, etc.).

Seeded sites are monitored on a slightly different scale. Because seed can take multiple years to germinate, the first reforestation survey generally occurs at year 4 (sometimes sooner). Depending on the results, another survey will be prescribed at year 7, with a final count at year 10. If a survey discovers an issue or poor results, another count may be prescribed earlier, especially if a follow up treatment may be necessary.

Table 16 summarizes the artificial reforestation monitoring results since 2017.

Table 16: Artificial Reforestation Monitoring Summary (acres)

| Species | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | | 2022 | | Average | |
|-------------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|---------|---------|
| | Seeded | Planted | Seeded | Planted | Seeded | Planted | Seeded | Planted | Seeded | Planted | Seeded | Planted | Seeded | Planted |
| Jack Pine | 558 | 145 | 326 | 202 | 446 | 202 | 394 | 202 | 460 | 0 | 481 | 0 | 437 | 150 |
| Red Pine | 0 | 638 | 0 | 876 | 0 | 891 | 0 | 667 | 0 | 798 | 0 | 686 | 0 | 774 |
| White Pine | 0 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| Other | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 558 | 832 | 326 | 1,078 | 446 | 1,093 | 394 | 869 | 460 | 798 | 481 | 686 | 437 | 934 |
| Grand Total | 1,390 | | 1,404 | | 1,539 | | 1,263 | | 1,258 | | 1,167 | | 1,371 | |

In 2022, a total of 1,167 acres of planted and seeded sites were monitored. This was slightly lower than the total number of acres monitored in 2021. 481 acres of seeded jack pine sites were monitored, while 686 acres of planted red pine were also surveyed.

In general, monitoring results show that red pine stands are progressing as expected. Jack pine seeded sites are generally still too young to quantify, but appear to be progressing as expected. However, as previously stated, some seeded sites are now starting to exhibit significant levels of deer browse. In general, stocking on seeded sites is a little lower and much more variable when compared to planted stands.

If browse pressure continues at current levels and/or if stands are determined to be inadequately stocked, many of these seeded sites will be considered a failure and will need to be reforested (again). If a jack pine seeded site is determined to be a failure, re-planting will most likely be the preferred next step. Jack pine or red pine stock (containerized) will be planted in sites that are considered a failure (jack pine will be preferred within the designated barrens areas). Supplemental plantings will most likely also require bud capping to protect from overbrowsing.

- d) Natural Regeneration Monitoring (Competitive Regeneration Survey/Forest Regeneration Metrix). How a stand will be reforested after a regeneration harvest is one of the most critical aspects of forest management. As previously stated, every stand that is managed is ultimately reforested, however, the methods of reforestation can be somewhat variable, depending, in part, on the timber type and existing conditions.

Table 13 summarized the general type of regeneration activity that is prescribed to stands upon completion. Of stands that are reforested after management, natural regeneration is prescribed roughly 65% of the time. Like artificial reforestation, natural regeneration monitoring is an essential part of any forest management activity.

Table 17 summarizes the total amount of natural regeneration monitoring (acres) that has occurred on the Bayfield County Forest since 2013.

Table 17: Natural Regeneration Monitoring Summary¹

| Year | Northern Hardwood | Red Maple | Red Oak | Scrub Oak | Aspen | White Birch | Swamp Hardwood | White Pine | Swamp Conifer | Other | Total |
|---------|-------------------|-----------|---------|-----------|-------|-------------|----------------|------------|---------------|-------|-------|
| 2013 | 102 | 0 | 272 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 374 |
| 2014 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2015 | 92 | 0 | 190 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 282 |
| 2016 | 352 | 0 | 618 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 970 |
| 2017 | 563 | 0 | 675 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,238 |
| 2018 | 1,381 | 0 | 846 | 0 | 799 | 0 | 23 | 0 | 5 | 0 | 3,054 |
| 2019 | 1,364 | 534 | 1,118 | 56 | 1,224 | 0 | 0 | 0 | 0 | 0 | 4,296 |
| 2020 | 1,652 | 0 | 1,065 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 2,747 |
| 2021 | 357 | 268 | 418 | 182 | 867 | 31 | 0 | 53 | 0 | 0 | 2,176 |
| 2022 | 916 | 288 | 396 | 59 | 0 | 0 | 23 | 33 | 0 | 0 | 1,715 |
| Average | 678 | 109 | 560 | 30 | 289 | 3 | 5 | 9 | 1 | 3 | 1,685 |

¹ Utilizing the protocols outlined in the Forest Regeneration Metrix from 2012-2020. Using Competitive Regeneration Survey starting in 2021.

Natural regeneration monitoring was previously accomplished utilizing the protocols outlined in the Forest Regeneration Metrix (FRM). Please refer to the 2021 Bayfield County Forest Annual Work Plan for more detailed information on FRM. As FRM was developed, the Department slowly incorporated it into the process. The initial priorities were targeting stands of red oak and northern hardwood (the two hardwood types that have been experiencing some issues in the reforestation process), but other timber types were added in 2018.

Starting in CY 2019, the goal was to incorporate FRM on all stands that will be regenerating naturally after management, as time allows. Monitoring parameters and protocols are still in the process of development and will be fine-tuned as more information is collected.

Recently, after working with FRM methodology over the past few years, the Department concluded that the survey was not providing the results needed to help facilitate future management level decisions for each stand. The Competitive Regeneration Survey (CRS) was established internally using some FRM metrics and methodologies, combined with additional criteria. The goal of CRS is to measure/monitor stands that are being regenerated naturally to determine the likelihood of future success. And, if additional inputs will be required to facilitate the establishment and recruitment of desired tree species. CRS protocols were adopted starting in 2021. See the 2023 Bayfield County Forest Annual Work Plan (Work Plan) for more detailed information on CRS protocols.

In 2022, a total of 1,715 acres of naturally regenerating stands were monitored for success. This is a decrease when compared to the total amount monitored in 2021. Stands are ultimately monitored when they are on the schedule. A natural fluctuation in the total number of acres on the monitoring schedule is the primary reason for the decrease in accomplishment. When/if time is a limiting factor, lower priority stands like aspen are generally the first types to be removed from the inventory list.

For northern hardwood and red oak, FRM surveys occurred at intervals of 3, 5 and 10 years, post harvest. While the CRS protocol targets an initial survey between years 5 and 7, with additional follow-ups if an issue is found. If issues are discovered or if natural regeneration is anticipated to be a problem, additional surveys may be applied to help determine the next course of action.

For all other types that will be regenerated naturally, an initial survey will be conducted at year 5, post-harvest (or 6/7 with CRS). If natural regeneration is expected to be an issue, a survey may be conducted earlier. Also, if an issue is discovered, additional surveys may be applied in successive years to help determine the next course of action.

In general, the results of regeneration surveys have been variable. Many stands of red oak and northern hardwood are not regenerating as planned. The results of the surveys show success in regenerating fully stocked stands of desirable trees, but are often poorly stocked or underrepresented in the targeted species (e.g. red oak).

The germination and initial establishment of desirable or targeted tree seedlings has generally not been an issue, but development and recruitment have yielded mixed results. Though additional site preparation methods, both pre and post-sale, will be considered as a means to increase germination rates and better facilitate seedling development.

In most regenerating stands of red oak and northern hardwood, the impacts of over browsing by white tailed deer have been identified as one of the most limiting factors in the reforestation process. A system and methods to analyze CRS/FRM data is still in development and monitoring will continue to be accomplished on all stands in the process of being reforested.

The Department has also created a custom survey tool that is used to collect regeneration information in the field (using the CRS protocols) This tool helps to streamline the data collection process and has been shared with the DNR, as well as a few other interested counties.

- e) Continuous Forest Inventory (CFI). In 2018, the Department began the development and implementation of a new long term forest monitoring program, termed continuous forest inventory (CFI).

Table 18 displays the total number of CFI plots established since 2018, per cycle (establish or re-measurement) and per primary timber type.

Table 18: CFI Plot Establishment and Re-Measurement Summary

| Primary Timber Type | Establishment (First Full Cycle) | | | | | Re-Measurement | Grand Total |
|---------------------|----------------------------------|------|------|------|------|----------------|-------------|
| | 2018 | 2019 | 2020 | 2021 | 2022 | 2022 | |
| Aspen | 31 | 76 | 87 | 64 | 45 | 10 | 313 |
| Northern Hardwoods | 14 | 18 | 15 | 18 | 7 | 3 | 75 |
| Red Pine | 14 | 10 | 19 | 22 | 0 | 0 | 65 |
| Red Oak | 10 | 7 | 13 | 17 | 7 | 2 | 56 |
| Jack Pine | 14 | 13 | 10 | 13 | 0 | 2 | 52 |
| Scrub Oak | 3 | 5 | 4 | 9 | 3 | 0 | 24 |
| Kegs/Water | 2 | 3 | 6 | 8 | 1 | 1 | 21 |
| Swamp Conifer | 0 | 4 | 1 | 5 | 2 | 2 | 14 |
| Swamp Hardwoods | 2 | 2 | 4 | 4 | 1 | 0 | 13 |
| Lowland Brush/Alder | 2 | 2 | 0 | 3 | 2 | 3 | 12 |
| Grasses | 3 | 1 | 1 | 3 | 1 | 2 | 11 |
| White Pine | 0 | 1 | 3 | 4 | 2 | 0 | 10 |
| Red Maple | 2 | 3 | 1 | 0 | 2 | 1 | 9 |
| White Birch | 1 | 1 | 1 | 1 | 1 | 0 | 5 |
| Fir/Spruce | 0 | 0 | 2 | 2 | 0 | 0 | 4 |
| Right of Way | 1 | 0 | 1 | 2 | 0 | 0 | 4 |
| Other | 0 | 1 | 2 | 1 | 0 | 0 | 4 |
| Hemlock | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Total | 99 | 147 | 170 | 177 | 74 | 26 | 693 |
| Grand Total | 667 | | | | | 26 | |

The primary purpose of implementing a permanent and continuous forest inventory is to collect statistically sound stand information that will be used to report on the status and trends of the forest. The multitude of data that will be collected as part of every plot will be used to track variables like, but not limited to: forest extent, forest cover (by type), volume, growth, quality, mortality, removals, regeneration, habitat, health (both at the stand level and forest wide), carbon sequestration, invasive species, soils, down woody debris, biomass, insects and disease, herbivory, and more.

The initial establishment phase was completed in 2022. The final 74 plots were installed in 2022. A total of 667 permanent CFI plots have been installed throughout the forest. The plots were established throughout all cover types on the forest, in conformance with Wisconsin DNR CFI protocols. For more detailed information on the CFI program, please see the 2023 Work Plan.

Once the establishment phase is completed, the re-measure phase begins. In 2022, a total of 26 plots were re-measured. The data collection process will be repeated, with the goal of complete re-inventory every five years. Also, the process of data analysis began in CY 2019 and continued through 2022, with assistance from the Wisconsin DNR. Though most of the growth and development metrics won't be fully realized until the re-measurement phase begins.

Establishing 667 CFI plots equates to about 1 plot for every 260 acres of forest land. At this rate, the plot design will provide a sampling error not to exceed 5% across all timber types and 10% within each two-inch size class, up to 17 inches in diameter. Additionally, one CFI plot actually consists of two, 24' radius plots spaced 120' apart (from plot centers). Within each plot is a 6.8' radius subplot (where regeneration, understory vegetation and other similar data is collected). When combining both plots, a total of 1,334 plots will be established.

One CFI plot represents approximately 260 acres of county forest land (actually 258 acres). Using that metric, a total of roughly 25,800 acres were inventoried/examined as part of the CFI program in 2022.

- f) Other Monitoring. In addition to the various monitoring efforts listed above, the Department has also established deer exclusion fencing to analyze the impacts of browsing. Two larger scale, woven wire fences and numerous small scale poly exclusion areas.

The two large scale deer exclusion fences were both constructed with eight foot tall, high tensile woven wire. A 29 acre exclusion is located south of Oulu and was installed during the spring of 2007. While a 50 acre exclusion is located south of Cable and was installed during the fall of 2008. Both fences were constructed on stands being actively managed for red oak. Both locations are routinely monitored to study the growth and development of regeneration and to better understand the potential influences of browsing by deer.

Both fence locations have also been recently harvested, where the overstory was removed to allow established regeneration to recruit. Each site will continue to be monitored to evaluate the effectiveness of the fence. The fences will also be maintained throughout this process, with the goal of eventual removal once seedlings have established and attained dominance.

A few smaller scale fences (ranging in size from 6'x6' to nearly ½ acre, made from high density plastic) have also been constructed on the forest. These are much smaller in size, but still intended to monitor the impacts of excessive browsing by white tailed deer.

In addition to stands of red oak and northern hardwood, other cover types like swamp conifer, white pine and white birch are being monitored to better understand the potential impacts of deer browse. To date, a total of 15 smaller fences are being maintained on the forest and monitored on a regular basis.

Information collected from the deer exclusion fences will be used to assist in the development of future management strategies, especially with regards to regenerating trees that are also preferred browse species i.e. red oak, paper birch, jack pine, white pine, (and now most of the traditional northern hardwood species).

- g) Total Monitoring Across All Programs. Whether new timber sale establishment, timber sale close-out, compartment level inventory, stand level inventory, artificial regeneration monitoring, natural regeneration monitoring, or one of the many reforestation activities, the Department collects information on a significant amount of county forest land every year. primary

Table 19 summarizes the total amount of acres that are analyzed by the Department per year, from 2013 through 2022.

Table 19: Summary of Principal Activities Occuring on the Bayfield County Forest (acres)¹

| Year | New Sales | Closed Sales | Compartment Inventory | Stand Update | Artificial Monitoring | Natural Monitoring | Reforestation Activities | Total |
|---------|-----------|--------------|-----------------------|--------------|-----------------------|--------------------|--------------------------|--------|
| 2013 | 4,348 | 2,912 | 9,316 | 517 | 2,253 | 374 | 2,097 | 21,817 |
| 2014 | 4,331 | 5,219 | 5,014 | 5,773 | 2,553 | 0 | 1,414 | 24,304 |
| 2015 | 4,289 | 4,766 | 5,320 | 8,102 | 1,472 | 282 | 2,083 | 26,314 |
| 2016 | 4,718 | 2,892 | 5,784 | 1,586 | 1,419 | 970 | 2,038 | 19,407 |
| 2017 | 4,354 | 4,092 | 4,107 | 4,838 | 1,390 | 1,238 | 1,594 | 21,613 |
| 2018 | 3,775 | 4,247 | 8,613 | 4,461 | 1,404 | 3,054 | 1,442 | 26,996 |
| 2019 | 4,608 | 3,322 | 0 | 6,167 | 1,539 | 4,296 | 1,069 | 21,001 |
| 2020 | 5,177 | 3,637 | 12,172 | 1,696 | 1,263 | 2,747 | 1,424 | 28,116 |
| 2021 | 4,911 | 3,832 | 17,166 | 804 | 1,258 | 2,176 | 1,652 | 31,799 |
| 2022 | 3,615 | 4,292 | 7,481 | 3,831 | 1,167 | 1,715 | 1,235 | 23,336 |
| Average | 4,413 | 3,921 | 7,497 | 3,778 | 1,572 | 1,685 | 1,605 | 24,470 |

¹ Primary activities/goals that are tracked per year.

In 2022, a total of 23,336 acres were managed by the Department. This represents about 13% of the total amount of county forest land.

This number also does not include the amount of land monitored as part of the Continuous Forest Inventory (CFI) program. If including the amount of land inventoried as part of the CFI program (25,800 acres), the total amount of monitoring in 2022 would be nearly 50,000 acres or almost 30% of the total amount of county forest land.

Barrens Management Areas

The Barnes Barrens Management Area (BBMA) was formally designated in 2012 with the goal of developing and maintaining critically important Pine Barrens habitat through the simultaneous management of jack pine and open/early successional barrens. This was after nearly 5 years of strategizing and planning. Development of the Bass Lake Barrens Management Area (BLBMA) began in 2020 and continued through 2022. Again, following multiple years of planning.

Among other things, the Barrens Management plan defines operational parameters and guidelines that must be followed to achieve the desired future conditions. Please review the 15-Year Comprehensive Land Use Plan and 2023 Work Plan for more detailed information on barrens management.

Below is a list of the primary accomplishments within the BBMA since 2012:

- Established a timber sale to address the remaining portion of standing timber in the path of the core road (which will be located around the entire perimeter of the core area).
- Established timber sales in Zones 1 and 2 to maintain/prepare for the scheduled future harvest cycles within each zone.
- Began the conversion of red pine stands in Zone 4 to jack pine to prepare for the scheduled future harvest cycles in that Zone.
- Currently, approximately 3.5 miles of the core road has been completed. Most of the core road was constructed in 2019, but the final grading and shaping was completed in 2020.
- Knapweed has been treated along heavily infested roads since 2013 (see Invasive Species section below for more information). As a result, the total amount of knapweed has been reduced significantly.
- As per the Barrens plan, all reforestation efforts focus on jack pine. Each year, sites are either trenched, site prep sprayed, or aerial seeded with jack pine.
- In 2020, the Department completed the fourth year of monitoring permanent vegetation plots, located within the BBMA, to study the effects of various chemical mixtures on the development of native plants.
- To date, roughly 75% of the core area has been established as open barrens (the core area is roughly 1,000 acres in size).
- 472 acres (or nearly 50%) of the core area has been treated with at least one prescribed burn. An additional 192 acres of the core was burned in the spring of 2022, while another 307 acres was burned in the fall. Some of the acres were burned previously.
- In 2020, 426 acres of the core area were roller chopped (mechanical site preparation) to reduce vertical structure and improve habitat. This project was 100% funded with supplemental Pittman-Robertson (PR) Wildlife Habitat dollars from the DNR.
- In 2020, 228 acres were treated with herbicide to facilitate the development of the core area.
- In 2020 and 2021, numerous game cameras have been installed throughout the core to observe the presence and movement of wildlife.
- In 2021, roughly 1 acre was brushed/mowed by the Highway Department to establish a new lek site for Sharp-tailed grouse. In the spring of 2022, as many as 10 males were observed dancing on this new site!
- Established a wildlife project that will focus on monitoring birds within the barrens. The Department will partner with Natural Resources Research Institute (NRRI), University of Minnesota-Duluth in the development of a sharp-tailed grouse (STG), as well as breeding bird monitoring projects. The STG project will focus on tagging birds with tracking devices to monitor movements within barrens habitats. While NRRI is contracted to design and administer the study, the Department will also be partnering with the DNR and USFS on this project. The breeding bird survey will focus on collecting nesting information on representative stands within the BBMA. The goal of both projects is to develop a better understanding of habitat use. Information collected will be used to fine-tune future barrens management strategies. DNR wildlife habitat funds will be used to fund a portion of these projects. NRRI has secured numerous other funds that will be used to address more than half of the total costs.
 - In 2021, NRRI completed a breeding bird survey within the BBMA.

- In 2021, NRRI led a project to capture, tag (with gps collars and colored leg bands) and monitor Sharp-tailed grouse.
 - A summary report of this project is located on the website: <https://www.bayfieldcounty.wi.gov/243/Plans-Reports>.
- Sharp-tailed grouse capture, tagging and monitoring will continue in 2022. As of May 2023, two males remaining tagged and are still submitting information. This is significant as there will be at least one solid year of movement charts which will produce a wealth of information on habitat use throughout all four seasons. The male that is tagged in the Barnes Barrens was observed dancing on a lek.
- Also in 2022, a more thorough inventory of vegetation was completed within the core area. This will establish a baseline and will be used to determine habitat richness. Additional similar monitoring efforts will be required to monitor development.
- The Department collaborated with DNR Wildlife to identify two mature jack pine stands that may provide suitable habitat for the Connecticut Warbler. Both stands were slated for management, but were retained to monitor for use. Approximately 27 acres of one stand was treated to cut thick understory brush with the goal of improving habitat and increasing the chances of use by the warbler. The DNR funded the understory treatment. The Connecticut Warbler has dramatically declined in Wisconsin, with NW providing the last known breeding populations.
- The Department also maintains roughly a dozen game cameras targeting lek sites to monitor for the presence of Sharp-tailed Grouse. Game cameras also pick up on a other uses by a variety of different wildlife species.
- In 2023, the Department invested into a few Autonomous Recording Units (ARU). These are small audio recording devices designed to collect sound recordings of birds, bats, frogs and other vocal animals in the wild. Recordings can then be downloaded and processed to determine species. We are currently working with the Institute for Bird Populations to calibrate the ARUs and assist in data processing and interpretation. In the future, in addition to monitoring for Sharp-tailed grouse, these units could assist with breeding bird surveys, or other similar projects, and is another valuable tool for monitoring usage and ascertaining the quality of habitat.

Below is a list of primary accomplishments with the BLBMA (starting in 2020):

- Completed numerous timber sales required to begin the development of the BLBMA.
- Established more timber sales to continue development.
- Collaborated with the DNR regarding the best placement for a system/fire management road. The roads will be constructed within the next few years and serve as primary access to the BLBMA.
- Roller chopped (mechanical site preparation) 40 acres to reduce vertical structure and facilitate the development of the BLBMA. This project was 100% funded with supplemental Pittman-Robertson (PR) Wildlife Habitat dollars from the DNR.
- In 2021, the following was accomplished:
 - Site Preparation (roller chopping): 133 acres;
 - Site Preparation (herbicide): 378 acres;
 - Road Building (new construction): approximately 0.6 miles;

- Road Building (ford crossing): installed on new system road to facilitate access.
 - The roller chopping, herbicide, ford and a portion of new road construction were funded through PR and Turkey Stamp grants. Another portion of new road construction was completed as part of an existing timber sale.
- Timber sale establishment to remove merchantable and sub-merchantable trees within the BLBMA.
- In 2022, timber sale establishment continues with the BLBMA and is expected to continue through 2023.
- Also in 2022, a total of 137 acres was treated with herbicide to develop habitat. If needed, herbicide is used to help establish the site. Prescribed fire will be used in the future to maintain habitat.
- In 2023, additional timber sale work and prescribed burning (habitat development) are expected to occur.
- Also in 2023, the fuel mitigation corridor (road) will be completed around the west boundary of the BLBMA. This contract was awarded in 2022.

Invasive Species and Insects and Disease

Over the past few years, the Department has become more involved in the treatment of invasive species on the county forest. Invasive species have the potential to alter the ecological relationships among native species, negatively affect the natural functions and structure of forested ecosystems, and can negatively impact the economic value of the forest.

Currently, non-native invasive species like spotted knapweed and common buckthorn and native invasive species like black locust are the most common plants treated on the forest. Table 20 describes the summary of invasive species treatments on the county forest from 2013-2022.

Table 20: Invasive Species Treatment Summary

| Year | Road R.O.W. (mi)¹ | Hand Treatment (ac)² |
|----------------|-------------------------------------|--|
| 2013 | 0 | 9 |
| 2014 | 50 | 15 |
| 2015 | 48.5 | 13.5 |
| 2016 | 48.5 | 11.5 |
| 2017 | 52.5 | 24 |
| 2018 | 42 | 51 |
| 2019 | 42 | 13 |
| 2020 | 50 | 30 |
| 2021 | 44 | 82 |
| 2022 | 44 | 85 |
| Average | 42 | 28 |

¹ Spotted knapweed treatment in the Barnes Barrens area.

² Primarily small isolated patches of buckthorn and black locust.

The management of invasives species has been a progressively increasing workload, primarily as it pertains to hand treatments. In 2022, approximately 85 acres were hand treated, primarily by Department staff. Of that total, 59 acres were targeting the treatment of buckthorn, 12 acres of multiflora rose, and 14 acres of black locust. Most of the treatments involved foliar chemical applications, but stump treatments occurred on stems that were too large to be treated with foliar spray.

It should be noted that, to date, most hand treatments are targeting infestations that generally are located in isolated and fairly widely distributed patches (in other words, the acres treated in 2022 were not blanketed with a sea of targeted invasive species). Some patches contain higher levels of density and require more intensive treatments.

Unfortunately, additional outbreaks are discovered every year and will most likely require more resources to control. As a means to address future workloads, the Department completed an initial inventory of known problem areas/infestations in 2022. Goals of the inventory are to better define the extent of infestations and potential demand on resources, as well as to develop a working management plan that will, in part, address future needs and workloads. Work on the invasive species management plan will commence in 2023.

In 2015, the Department received a \$37,500 Sustainable Forestry Grant for the initial treatment of spotted knapweed on 48.5 miles of forest roads in the Barnes Barrens Management Area. Herbicide was used to treat spotted knapweed in the first attempt to reduce further spread into the barrens. The project focuses on roads that are the most heavily infested, but more still needs to be done. This grant helped to kick start the program, which will require additional inputs in order to keep the problem in check.

Starting in 2018 a few segments of road were removed from the treatment area, as spotted knapweed management in those areas was successful. Rather than treat all roads every year, another goal of the program is, once under greater control, to treat only those sections where knapweed has developed or expanded.

A total of 44 miles were treated in the BBMA in 2022. While the total number of miles treated has remained relatively consistent, the amount of chemical required to address spotted knapweed has declined by over 50%, from 8.5 gallons in 2015 to 2 gallons in 2022 (which equates to roughly 6 ounces/mile or 1 ounce per acre). The cost per mile has also decreased significantly during that same timespan, from \$750/mile in 2015 to \$197/mile in 2022.

The expectation is that some roads will need multiple treatments before the infestation is under control. Follow-up treatments will also be required to reduce the potential for spread. As knapweed becomes more manageable, it is also anticipated that less chemical will be required and/or there may be an opportunity to alternate treatment years. Additional roads may also need treatment and will be evaluated on a case by case basis.

Oak Wilt. In 2018, three cases of oak wilt were confirmed on the Bayfield County Forest. Two of the detections were made in Cable and one in Barnes. Please see the Bayfield County Forest 2023 Work Plan and Wisconsin DNR website for more information on Oak Wilt.

As a result of the detection, the infected trees needed to be addressed. After an oak wilt infected tree or pocket is located and confirmed, guidelines/protocols are adopted that help to determine how the trees/areas will/should be treated. Models or charts that estimate the number of trees located within potential root grafting distance of a known infection source are applied.

Once the perimeter is established all oak trees within it are double girdled and herbicide is applied to kill the trees, generally starting at the outside (of the perimeter) and working toward the center. Once the trees are killed, the oak wilt infected tree(s) are treated. Once all the trees are confirmed to be dead the uninfected trees may be harvested.

Table 21 below summarizes oak wilt treatments since 2018.

Table 21: Summary of Oak Wilt Treatments

| Year | Total Trees | Total Sites |
|--------------|--------------------|--------------------|
| 2018 | 30 | 2 |
| 2019 | 108 | 6 |
| 2020 | 0 | 0 |
| 2021 | 5 | 5 |
| 2022 | 35 | 6 |
| Total | 36 | 4 |

In 2018, a total of 30 red oak trees, including the two infected with oak wilt, were treated as per the recommended guidelines. Treating the impacted area took one full day with a few staff. Once more trees are detected, sites may no longer be managed in this manner and may require additional inputs or contract work (and potentially additional out of pocket expense).

In 2019, 108 trees were treated on six different sites, representing a significant increase in oak wilt management when compared to 2018. A few infected trees that were treated in 2019, will be felled and bucked and then either burned or tarped in the spring of 2020.

Covid-19 impacted previously scheduled monitoring efforts as the DNR was unable to fly this area for new outbreaks. However, the Department performed a few routine drone flights in the Cable block (near previously identified outbreaks) and did not locate new infestations. While no new infected trees were treated on county forest land in 2020, Department staff did assist an adjacent industrial landowner with the treatment of two trees confirmed to have oak wilt.

In 2021, a total of five sites were identified, all in the Cable block of the county forest. The infected trees were treated with rapid response protocols, then cut and tarped on site. A total of five trees were treated in this manner. The Department continues to work with the DNR on the monitoring and treatment of oak wilt across the property.

In 2022, a total of 6 sites were addressed, treating roughly 35 trees. Again, all within the Cable block of the county forest.

Emerald Ash Borer. Emerald ash borer (EAB) was discovered in Douglas County and, most

recently, in Sawyer County, our neighbors to the west and south. As a result, those counties have been quarantined, meaning, in general, there restrictions on the movement of wood. To date, EAB has not been discovered in Bayfield County. However, based on current locations, discovery in Bayfield County is inevitable. In general, ash contributes less than 0.5% of annual stumpage revenues and is present, as a dominant forest type, on less than 1.0% of the county forest.

The large purple traps often seen along major roadways, intended to help monitor for and locate the presence of EAB, are no longer being administered by DATCP or APHIS.

Since 2019, the Department has installed numerous purple traps at various locations on the county forest where ash is a significant component (a total of 9 different locations each year). To date, all traps have been negative for EAB.

However, in March 2022 EAB was officially confirmed in Bayfield County. In anticipation of eventual EAB confirmation, the Department has prioritized the re-inventory of all ash dominated stands to determine the next course of action. This included identifying stands that will be prioritized for regeneration harvests and/or associated reforestation actions.

As previously stated, the demand for ash is low, which is exacerbated by the usual operating conditions (frozen ground only). As a result, timber sales that are dominated by ash are a challenge to sell, making the silvicultural objectives difficult to accomplish. The Department will also continue monitoring for EAB (purple traps) in 2023.

Land Transactions

The Department will continue efforts to acquire properties on a willing seller, willing buyer basis, when advantageous to the long-term goals of Bayfield County. A priority will be given to land located within the existing county forest blocking and/or areas possessing special or unique natural resource values. All acquisitions are typically enrolled in County Forest Law and managed as part of the County Forest.

On occasion, the county will also divest of land. Divestment is typically only considered if the land in question will be put to a higher and better use and will provide greater benefits to the citizens of Bayfield County. All divestments need to be approved by the Forestry and Parks Committee and the County Board. Also, before land is formally divested, it first needs to be withdrawn from County Forest Law (CFL). Requests for withdrawal are submitted to and reviewed by the DNR. County forest land cannot be divested until a request for withdrawal has been approved by the state.

Table 22 summarizes all County Forest Law (CFL) entries (acquisitions) and withdrawals (divestments) from 2013-2022.

Table 22: County Forest Law (CFL) Entries and Withdrawals

| Year | Entries¹ | Withdrawals² | Net Change |
|----------------|----------------------------|--------------------------------|-------------------|
| 2013 | 40.00 | 4.25 | 35.75 |
| 2014 | 40.00 | 0.00 | 40.00 |
| 2015 | 2,601.80 | 0.09 | 2,601.71 |
| 2016 | 0.00 | 3.36 | -3.36 |
| 2017 | 200.00 | 90.20 | 109.80 |
| 2018 | 0.00 | 82.71 | -82.71 |
| 2019 | 3,731.25 | 0.10 | 3,731.15 |
| 2020 | 30.00 | 222.78 | -192.78 |
| 2021 | 0.00 | 362.57 | -362.57 |
| 2022 | 161.00 | 706.49 | -545.49 |
| Total | 6,804.05 | 1,472.55 | 5,331.50 |
| Average | 680.41 | 147.26 | 533.15 |

¹ Land added to the county forest, typically via purchase, donation, trade or tax delinquency.

² Land removed from the county forest, typically via sale or trade.

Since 2015, the Department has made a few significant land transactions. In December 2014, the Department received preliminary approval for two Knowles-Nelson Stewardship County Forest Land Acquisition Grants. The grants were officially awarded in June 2015. As a result, Bayfield County purchased 1,392 acres from Meteor Timber and 463 acres from Lyme Timber. Additionally, the county provided a match of 747 acres of county owned, non-county forest land. In total, 2,602 acres of land were added to the county forest in 2015.

Under the current Stewardship model, by using the appraised value of county owned land as the required match, the Department can tailor projects that significantly reduce (or eliminate) out of pocket expenses. The Meteor Timber and Lyme Timber acquisition projects totaled roughly \$2.616 million (including the cost of land, appraisals and other associated fees). The county received approximately \$2.265 million from the Stewardship grant (which included the appraised value of matched lands). As a result, the county spent roughly \$350,000, out of pocket, to purchase over \$2.6 million in productive forest land.

In 2016, the Department acquired 200 acres of land, formerly owned by the Wisconsin DNR, near Mt. Ashwabay, in the Town of Bayfield. The property was purchased entirely with county funds at a total of \$130,650 (or roughly \$659/acre). The transaction took a little longer to finalize and was officially transferred in 2017.

When combining the land purchased in 2016/2017 and the properties made part of the 2015 Stewardship project, the Department added a little over 2,800 acres to the county forest.

In June 2018, the Department submitted another large Stewardship acquisition project, utilizing portions of county owned properties as a match. The original application included the purchase of 1,110 acres from Ceres Timber, for the appraised value (subsequent grant value) of 181.25 acres of county owned lands, and 3,040 acres of the Bibon Swamp (for a total of 3,221.25 acres of match

lands). In addition, the county would contribute \$66,000 in cash. In total, the project was valued at roughly \$1.322 million.

The application was pre-approved by the DNR, but received an objection from the Wisconsin Joint Finance Committee (JFC). After much discussion with members of the JFC, it was determined that the objection was raised primarily due to the amount of wetlands being used as a match. To reach a compromise with the JFC, Bayfield County completely removed the Bibon Swamp from the project and submitted a revised application. The revised application was re-submitted in October 2018. As a result, the total size of the project was reduced significantly.

The revised application reduced the potential total acres purchased from 1,110 to 510; the total acres used as a match decreased from 3,221.25 to 181.25; the total acres included as part of the grant (acquisition and match) decreased from 4,331.25 to 691.25; the total value of the project decreased from about \$1.322 million to roughly \$667,000; and the total amount of cash required as part of the match increased from approximately \$66,000 to around \$153,000.

The acquisition was completed in March 2019. As part of the approved project, Bayfield County was required to enroll the Bibon Swamp in CFL, without compensation. In other words, the county did not receive match value for the property, but still had to enroll it in CFL (like all other properties included in the project).

A total of 510 acres was purchased from Ceres Timber for \$630,000. The county was awarded a Stewardship grant in the amount of \$485,775 to help purchase this property. To cover the applicant's share of the project costs, the county contributed the appraised value of 181.25 acres of county owned land (which was included in the Stewardship grant) and \$153,250 in cash (proceeds from the land sales to Red Cliff). A total of 691.25 acres of land will be enrolled in CFL, in addition to the 3,040 acres of the Bibon Swamp (the swamp will be enrolled as special use). After subtracting the 160 acres sold to Red Cliff (which were removed from CFL) a net grant total of 3,571.25 acres was added to County Forest Law in 2019.

In 2020 and 2021, a total of 572.78 acres was sold to Red Cliff, for a combined value of \$837,000. Proceeds from these sales are being held in a non-lapsing land acquisition account and will be re-invested in replacement lands. Also in 2020, a 30 acre parcel was purchased (for \$15,000) with partial funding from DNR snowmobile trail aids. This property contains a quarter mile of designated snowmobile trail and roughly half of an existing snowmobile trail bridge. The 30 acre property was also enrolled in CFL.

In 2022, a 160 acre parcel was donated to the county. The parcel is located in the Town of Port Wing and was donated by the Eleanor Schoenfeld Becker Trustees. Also in 2022, a roughly 1 acre parcel was purchased for \$2,500 in the Town of Barnes. This parcel is located adjacent to East Eight Mile lake and has roughly 150' of shoreline frontage. Both parcels were enrolled in CFL.

In 2022, the following parcels were withdrawn from CFL:

1. Red Cliff: 706.49 acres were withdrawn from CFL and sold to the Tribe for \$1.0 million. These were the remaining parcels of county forest land located within the reservation, thus completing the repatriation of such lands to the Tribe. See table 23 below for a summary of transactions.

In 2022, Bayfield County continued to collaborate with the Red Cliff Band of Lake Superior Chippewa (Red Cliff) regarding the repatriation of county owned lands located within the reservation. Since 2017, the county has sold a total of 1,439.27 acres of county forest land to Red Cliff. See Table 23 below for a summary of each sale:

Table 23: Summary of Land Sales to Red Cliff

| Year | Acres | Value |
|--------------|-----------------|-----------------------|
| 2017 | 80 | \$80,000.00 |
| 2018 | 80 | \$80,000.00 |
| 2020 | 222.78 | \$315,000.00 |
| 2021 | 350 | \$522,000.00 |
| 2022 | 706.49 | \$1,000,000.00 |
| Total | 1,439.27 | \$1,997,000.00 |

All proceeds from these land sales will be re-invested in replacement lands, enrolled in CFL and managed as part of the county forest. As of early 2023, Bayfield County is in the process of completing two large (and one smaller) land acquisition projects that, when finished, will add nearly 3,800 acres to the county forest.

The Department continues to work with various partners (primarily the Trust for Public Land (TPL), Wisconsin Coastal Management and Landmark Conservancy) on the development of grant applications for the purchase of replacement lands. Currently, the following three projects are in development, all at different stages in the process:

1. Towns of Bayfield and Bell: approximately 2,001 acres. Sand River Headwaters acquisition project. TPL has purchased the property and is Have secured an ARPA and Community Forests Grant. Also recently secured a NOAA grant. Total project value is roughly \$2.57 million. Expected to be completed in May 2023;
2. Town of Bell: approximately 160 acres near Lost Creek Falls. Recently completed the purchase of this property in partnership with Landmark Conservancy. Stewardship and WI Coastal grants were awarded. Total cost was roughly \$243,000. Property will be enrolled in CFL in 2023.
3. Town of Clover: approximately 1,580 acres. Bark River Headwaters acquisition project. This project was completed in February 2023. Total cost was nearly \$1.028 million. Property will be enrolled in CFL in 2023.

ROADS AND RECREATION (on the County Forest)

The Forestry and Parks Department maintains nearly 1,300 miles of roads and trails on the forest. These roads and trails provide a plethora of recreational opportunities. Some of the more popular pursuits include: hiking, hunting, mountain biking, snowmobiling, ATVing, cross country skiing, dog sledding, horseback riding, wildlife viewing, firewood gathering and more.

Primary Roads

Approximately 38 miles are classified as primary gas tax roads, which receive maintenance funds from the Wisconsin DOT (based on \$351/mile, but prorated depending on total miles enrolled in the program). These roads serve as primary access routes into portions of the county forest. A few of these roads located in the Towns of Barnes and Hughes also play an integral role in the wildfire protection plan.

The Department performed routine annual inspections on every mile of primary road to monitor for both road quality and invasive species in 2021. The Department, with assistance from the DNR, also performed annual routine maintenance on the rights of way for each primary road.

Maintenance usually is in the form of mowing, but can also include herbicide, if encroaching vegetation is unable to be mowed. A total of nearly 32 miles of primary road right of way was mowed in 2022. Routine grading of the Flag Road also occurred in 2022. This also included a significant level of gravel and shouldering work, which was accomplished with assistance from the Highway Department. Numerous other roads also incurred some minor routine maintenance in 2022, including erosion repair west of Jammer Hill Rd, as well as portions of the Webster-Moore Rd fuel break road.

Town Road Aids and Other Town Payments

In 2010, Bayfield County developed the Town Road Aid Fund. This fund was created to help improve problem areas on Town Roads that provide critical access to the county forest. Town Road Aids were initially funded at 1% of total annual timber sale revenues (enacted once actual revenues exceed the budgeted amount). All projects are selected and administered by the Department.

Table 24 summarizes the total Town Road Aid Program in 2022.

Table 24: 2022 Town Road Aids Award Summary

| Town | Funding Amount | Project Location |
|-------------------|-----------------------|-------------------------|
| Barnes | \$6,750.00 | West Church |
| Bayfield | \$6,750.00 | Various |
| Bayview | \$4,500.00 | Whiting |
| Bell | \$5,000.00 | South Stone |
| Cable | \$2,750.00 | Frels |
| Clover | \$4,000.00 | Lenawee |
| Highland | \$4,000.00 | Motts |
| Hughes | \$6,000.00 | Various |
| Iron River | \$3,500.00 | Ruth Lake |
| Namakagon | \$1,000.00 | Old Grade |
| Orienta | \$2,000.00 | East Sorenson |
| Port Wing | \$3,000.00 | Almstead |
| Russell | \$4,500.00 | Peterson Hill |
| Tripp | \$6,250.00 | Various |
| Total | \$60,000.00 | |

Starting in 2013, Bayfield County increased the funding level to 2% (with a cap of \$80,000). As a result, \$80,000 annually has been made available to Towns. Of the 30 County Forests in the State of Wisconsin, Bayfield County is the only one to offer this unique additional source of funding. In early 2019, the Forestry and Parks Committee voted to increase this funding and also remove the cap. However, because of the decrease in stumpage revenue, a total of \$65,717 was made available in 2021 and \$60,000 in 2022.

Once again, all Towns submitted solid projects. Most projects revolve around the purchase of material i.e. gravel, but some include culverts and equipment rentals. The average award amount was nearly \$4,500. The program has been very well received, with many town roads seeing significant improvements and providing much better access to county forest lands.

In addition to the Town Road Aid program, Townships receive other revenues due to the presence of county forest lands within Town jurisdictions. As per County Forest Law, the county is required to distribute at least ten percent of total net stumpage revenues, that are generated from the management of the county forest, to each Township (that contain county forest lands).

The distribution of funds is prorated and based solely upon the total amount (percentage) of acres located within each Town. Townships also receive an annual payment from the state. Termed PILT (payment in lieu of taxes), each Township receives \$0.63 per acre for every acre of county forest land (the PILT payment was increase from \$0.30 to \$0.63/ac starting in 2022).

Table 25 displays the total amount of revenue distributed or awarded to the Townships as a result of containing county forest lands.

Table 25: Total Annual Payments to Townships

| Year | 10% Timber Sales | Town Road Aids¹ | DNR PILT² | Total |
|-------------|-------------------------|-----------------------------------|-----------------------------|------------------|
| 2013 | \$390,410 | \$28,264 | \$51,434 | \$470,108 |
| 2014 | \$453,483 | \$80,201 | \$51,434 | \$585,118 |
| 2015 | \$499,306 | \$72,837 | \$51,434 | \$623,577 |
| 2016 | \$504,200 | \$85,267 | \$51,598 | \$641,065 |
| 2017 | \$500,990 | \$67,034 | \$51,598 | \$619,622 |
| 2018 | \$456,224 | \$81,700 | \$51,598 | \$589,522 |
| 2019 | \$417,166 | \$71,500 | \$52,725 | \$541,391 |
| 2020 | \$362,579 | \$85,750 | \$52,725 | \$501,054 |
| 2021 | \$385,229 | \$65,717 | \$52,725 | \$503,671 |
| 2022 | \$467,909 | \$53,000 | \$109,927 | \$630,836 |
| Avg. | \$443,750 | \$69,127 | \$57,720 | \$570,596 |

¹ Town Road Aids increased in 2014 and 2020.

² Payment made by the DNR based on \$0.63 per acre of county forest land in each Township

In 2022, the total 10% stumpage revenue sharing payment from the county was \$467,909. This represented an increase of nearly 22% when compared to the amount distributed in 2021. Prior to 2013, towns received an average annual total payment of roughly \$220,000. When combining the

10% payment, the Town Road Aids and the DNR PILT payment, a total of nearly \$631,000 was distributed to the Townships in 2022. This was an increase of over 25% when compared to 2021.

As previously stated, Townships receive a PILT payment from the state. Since the late 1980’s, this amount was \$0.30/acre. In 2021, the PILT payment was increased to \$0.63/acre. The increase in payment went into effect starting with the CY22 distribution.

Recreation - Events and Use Agreements

The county forest is used for a variety of recreational purposes. Non-motorized uses such as cross-country skiing, mountain biking, hunting, trapping, hiking, nature watching and dog sledding are extremely popular. Motorized uses such as snowmobiling and ATVing are also very popular. The demand for recreational use on public land is increasing every year.

Recreational events have traditionally been a big part of that increasing demand. Every year, numerous events are hosted on county forest land. All organized events required a permit, which is approved by the Forestry and Parks Committee.

However, nearly every event that has traditionally occurred on county forest land was cancelled in 2020, primarily as a response to Covid-19. A few of the early winter events were held as per normal, but nearly all events from March 2020 through the end of the year were cancelled. Many events resumed in 2021, though many remained cancelled as a response to Covid-19.

Table 27 displays the number of recreational use permits per recreation type that were approved since 2015. All approved permits were for events that utilized a portion of the Bayfield County Forest.

Table 27: Summary of Approved Events¹

| Type of Event | Number of Events per Year | | | | | | | |
|----------------------|---------------------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|
| | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 |
| Mountain Biking | 7 | 7 | 6 | 8 | 7 | 0 | 5 | 8 |
| Cross Country Skiing | 6 | 5 | 7 | 9 | 9 | 4 | 7 | 8 |
| Running | 3 | 4 | 4 | 3 | 3 | 0 | 2 | 4 |
| Dog Sledding | 1 | 1 | 1 | 1 | 2 | 2 | 1 | 1 |
| Orienteering | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |
| Other ² | 0 | 0 | 0 | 0 | 2 | 1 | 1 | 2 |
| Total | 18 | 17 | 19 | 22 | 24 | 7 | 16 | 23 |

¹ Includes events, clinics and similar organized activities.

² Includes snowshoeing and ski-joring events.

In addition to daily general recreational use, trails on the county forest also play an integral role in numerous popular organized events. Such events include, but are not limited to, the American Birkebeiner, Apostle Islands Sled Dog Race, Chequamegon Fat Tire Festival and the Cable Area Off-Road Classic mountain bike race.

Prior to 2020, the Forestry and Parks Committee approved an average of about 21 organized events annually. A similar amount was approved in 2020, however, most were cancelled due to Covid-19. The request to host events resumed in 2021, though a few remained cancelled. A total of 16 events were approved in 2021. Requests returned to pre-Covid levels in 2022, as 23 events were approved.

Mountain biking and cross-country skiing are generally the most common types, with a vast majority of events occurring in the Cable block. These events bring numerous participants and spectators to the area and are excellent examples of multiple use. The number of requests for mountain bike and cross-country skiing events has increased steadily over the past decade.

The Department also maintains land and/or recreational use agreements with a variety of organizations, some of which include: the American Birkebeiner Association, Chequamegon Area Mountain Bike Association (CAMBA), North Country Scenic Trail Association, North End Ski Club, Ashwabay Outdoor Education Foundation (AOEF), National Fish Hatchery, Town of Barnes, Bayfield County Snowmobile Alliance, Trails North ATV Club, Iron River Area Chamber of Commerce, and more.

In general, the use agreements highlight specific areas or trails within the forest and outline management or use requirements expected from each organization. Use requests are treated on a case by case basis and require approval from the Committee. Department staff regularly meet with permit holders regarding trail maintenance, timber sale activities and other recreation related concerns or issues.

Table 28 displays the approximate miles of designated roads and trails currently located within county forest boundaries.

Table 28: Summary of Designated Roads and Trails on Bayfield County Forest Land (miles)

| Road or Trail Type | Total Miles |
|--------------------------------|--------------------|
| Primary Road | 38 |
| Secondary Road | 1,239 |
| Road & Trail ¹ | 56 |
| Unclassified Road | 0 |
| Snowmobile Trails ² | 108 |
| ATV Trails ² | 42 |
| Cross Country Ski Trails | 42 |
| Mountain Bike Trails | 41 |
| Hiking Trails | 17 |
| Dog Sled Trails | 70 |

¹ Where a designated trail is located on a secondary road.

² Does not include trails located on town roads, other public lands or private lands.

In addition to designated trails, the county forest offers an abundance of recreational opportunities on roads and trails that are not designated for a specific use (i.e. signed and maintained by friends or use groups). For example, of the approximate 1,300 miles of roads and trails on the county forest,

approximately 44% can be traveled with a licensed highway vehicle, roughly 73% with an off-highway vehicle (i.e. ATV,UTV) and over 90% with a snowmobile. In addition, all are open to hiking and virtually all are open to mountain biking, horseback riding and cross-country skiing.

The Department staff works closely with all permitted recreational user groups on the establishment and/or maintenance of trail systems. Recreational use agreements with organized clubs (as described above) continue to be pursued at every opportunity.

In 2021, the Department began the process of developing a County Forest management plan for the Mt. Ashwabay Special Management Area for Recreation (SMA). This plan was completed in 2022 and is located on the Forestry and Parks Department website.

Recreation - Non-Motorized (managed by the Department)

Recreational trails, whether motorized and part of the state funded system, or non-motorized and part of a designated network, are an integral and important component of any forest management program. Over the past few years, the Department has emphasized the importance of recreation, incorporating efforts to maximize, or better capture, the recreational potential of the forest, including the construction of the three rustic yurts. At nearly 176,000 acres and spread out over the length of Bayfield County, the county forest provides, or has the potential to provide, a plethora of recreational opportunities.

All trails are open to most forms of non-motorized use, but only a small portion are actually designated and maintained for a specific form of recreation. Trail conditions can also be highly variable. Of those that are maintained for designated uses, most are managed through partnerships/agreements with non-profit organizations, and some are maintained directly by the Department.

Currently, there are two major areas of the county forest where non-motorized recreation is more organized and intensive. These areas are the low-motorized blocks in Cable and near Mt. Ashwabay. In these areas, the Department has developed strong partnerships with numerous non-profit organizations on the designation and maintenance of the trails.

- Cable Area. The Chequamegon Area Mountain Bike Association (CAMBA) is responsible for the development and management of over 300 miles of mountain bike trails within the region. This includes trails located on the Bayfield County Forest, Sawyer County Forest and Chequamegon Nicolet National Forest, in addition to some privately owned lands.

In the Cable block of the Bayfield County Forest, CAMBA maintains approximately 23 miles of sustainably built singletrack mountain bike trails and an additional roughly 11 miles that occur on logging roads, railroad grades or similar features. These trails connect to those located on the Chequamegon Nicolet National Forest and Sawyer County Forest to form one of the most extensive mountain bike networks in the nation. CAMBA maintains a recreational use permit with the Department that describes the partnership and how trails are maintained or developed on the Forest. Routine maintenance work and minor trail improvements occurred in 2022.

Numerous mountain bike related events are hosted on trails located within the county forest in the Cable area. Some of the most popular include: CAMBA hosts the Festival of Trails; the Cable Area Chamber of Commerce hosts the Cable Area Off-Road Classic; Life Time Fitness hosts the Chequamegon Fat Tire Festival; and the American Birkebeiner Association hosts the Fat Tire Birkie (in the winter). All of these events are extremely popular and bring thousands of riders and spectators into the area.

Also in the Cable block, the North End Ski Club and American Birkebeiner Association (ABA) maintain cross country ski and snowshoe trails on the county forest. Some of the ski trails utilize the same portion of ground as the bike trails. Snowshoe trails are also maintained on most of the single track trails. The North End Ski Trail network totals roughly 21 miles on county forest land, while the snowshoe network is about 4 miles. Both organizations maintain recreational use permits with the Department. Fat bike trail (big tired mountain bikes) are also gaining in popularity. In 2022, a more miles of trail were also groomed for fat bike use. Maintenance work and minor trail improvements also occurred in 2022.

The North End Ski Club also maintains a warming cabin, outhouse and storage building on county forest land. The cabin and outhouse are open for public use. The storage building is used to house much of the gear and grooming equipment required to maintain the trails. They also host numerous cross country ski events including their flagship North End Classic race.

The American Birkebeiner Ski Foundation (ABSF) maintains roughly three miles of the famed Birkie trail on county forest land. They also maintain a newly constructed warming/storage building and privy. The world famous American Birkebeiner cross country ski race, as well Prince Haakon and Birkie tour ski events are all held on county forest land. The ABSF also hosts other events, including various running events and the Fat Tire Birkie (see above).

Recreational Use Agreements for ABSF and CAMBA will be updated in 2023. The Rec Use Agreement for North End Ski Club will most likely also be updated in 2023, so that all groups are current and placed on the same timelines.

- Mt. Ashwabay Area. In the northern portion of the Forest, the Ashwabay Outdoor Recreation Foundation (AOEF) and Bayfield Nordic maintains an extensive network of cross country ski and snowshoe trails, in part, on county forest land (also on county land not part of the county forest i.e. Jolly Trails). Trails are groomed for classic or skate skiing. AOEF hosts numerous events (both summer and winter events) on the trails including: the Peel Out 5k Run; WinterDASH running event; and a Fat Tire Expo/Time Trial. In addition, numerous other groups host events on these same trails, including CANSKI's Summit Cross Country Ski Race. The Bayfield and Washburn school districts have also used portions of the trails for various ski and running meets.

In 2018/2019, the Department worked with AOEF to construct a new section (loop) of cross country ski trail that connected to an existing network. The connection totaled a little less than one mile, with roughly 0.65 miles of new construction and about 0.25 miles on existing

logging roads. In exchange for some maintenance work on the cross country ski trails, AOEf helps groom access routes into each yurt (ski trail passes are also included for each yurt rental).

In 2020, the Department worked with AOEf to improve sections of the Ashwabay trail system (Deer Path). This involved regrading and re-aligning sections of existing trail and installing culverts to facilitate better drainage at two separate locations.

Recently, a branch of CAMBA (CAMBA North) was formed to develop a mountain bike trail network, primarily on county forest land located near Mt. Ashwabay. In 2011, the Department approved CAMBA's proposal to construct up to 30 miles of new singletrack mountain bike trails on county forest land.

In 2018, approximately 4.5 miles of new singletrack trail was constructed, partially funded with budgeted county capital monies. All new construction occurred on county forest land. A trailhead parking area was also constructed on county forest land, off Whiting Road, to provide another access point to the trail system (the primary parking area is located off Ski Hill Road).

To date, roughly 19 miles of sustainably built, single track mountain bike trails have been constructed, roughly 18 miles of which is located on county forest land. The 4.5 miles that were constructed in 2018 essentially marked the completion of the first phase of the project. Many of these trails are also being maintained in the winter for fat tire mountain bike use.

In 2020, the Department worked with CAMBA to expand the parking area/trailhead at the Whiting Road location. This included widening and the addition of material. The Department also worked with SPARK (Student Pathways to Adventure, Resilience and Knowledge) on the installation of a porta-potty at this same location. Emergency access sites were also created, with new gates, at this same location.

A concrete vault bathroom was installed at the Whiting Road trailhead in June 2022, thus replacing the need for a porta-potty.

Trail counters have been installed at both trail head locations (one off Ski Hill Road and one off Whiting) as a means to monitor and better understand use patterns. The counter off Ski Hill Road has been in place since 2015, while the counter off Whiting was installed in 2017.

Table 29 summarizes the total amount of trail uses originating from each trail head location.

**Table 29: Trail Counter Summary - CAMBA Trails
Mt. Ashwabay Location¹**

| Year | Ski Hill Rd. Access | Whiting Rd. Access | Total |
|-------------|--------------------------------|-------------------------------|--------------|
| 2015 | 3,543 | 0 | 3,543 |
| 2016 | 3,965 | 0 | 3,965 |
| 2017 | 3,293 | 1,485 | 4,778 |
| 2018 | 4,068 | 1,615 | 5,683 |
| 2019 | 2,570 | 3,211 | 5,781 |
| 2020 | 3,506 | 4,462 | 7,968 |
| 2021 | 3,058 | 4,367 | 7,425 |
| 2022 | 2,092 | 2,802 | 4,894 |
| Avg. | 3,262 | 2,243 | 5,505 |

¹ Number of individual uses per trail head location.

The trail counters were placed in strategic locations in order to capture as much use as possible. In general, counters from each trail head are capturing different users. However, there could be instances where a trail user trips the counter at one trail head and rides a good portion of the entire system, thus tripping the counter at the other trail head. Trail users could also access the system from other locations, not serviced by one of the trail heads. The conventional thought is that such uses are offsetting, resulting in solid use data.

As per Table 29, use of the CAMBA trails at Mt. Ashwabay has increased steadily since 2015, especially with the addition of the second trail head, with a spike during the Covid influenced years of 2020 and 2021.

Use in 2022 decreased markedly, by roughly 35%. This decrease may be best explained by some form of post Covid-19 normalization, as well as an increase in similar mountain biking opportunities in the region.

In addition to the Cable and Mt. Ashwabay areas, designated non-motorized recreational trails and/or areas are located on numerous other county owned properties (on county forest lands, as well as non-CFL properties). Some of the more popular designated trails include the North Country Trail, Jerry Jolly Trails, Lost Creek Falls Trail and the newly acquire Swenson Forest Preserve/Siskiwit Falls property.

- North Country Trail. Approximately 8 miles of the North Country Trail travels within the county forest. These trails are maintained by local chapters of the Association. In 2018, North Country Trail volunteers completed a roughly 1.4 mile relocation of the trail between Banana Belt Road and Pero Road, south of Iron River. This re-route moved the trail off an older logging road and through a forest of younger aspen. A total of roughly 1,400 volunteer hours went into the relocation. The NCT association also maintains two rustic campsites on county forest land near the trail. One campsite is located near Erick Lake and the other is located near Morris Pond.

- Jerry Jolly Trails. Some additional work was accomplished on the Jolly trails in 2019. A broken timber mat, used on the trail to cross a minor wet area, was repaired in 2019 (using salvaged timbers that were removed from the docks in the City of Bayfield). Some additional gravel was placed on the access road, parking area and portions of the trail. Work also began in 2017 to re-evaluate the Jolly network to determine current uses, the intensity of those uses, the condition of existing infrastructures and explore future direction options/potential. Trail counters are installed at the trail head or primary access point of the Jolly network to help determine the amount of use the system receives. A small foot bridge was repaired in 2021.

Numerous trail improvement projects were completed in 2022, in part with assistance from Bayfield Area Trails (BATS) and their volunteers, including the installation of a new bridge and boardwalk, tread improvements and brushing. Similar general maintenance activities are expected to continue in 2023, including additional trail and sign work.

Table 29a summarizes the total use at Jolly/Pike’s Creek since 2018.

**Table 29a: Trail Counter Summary
Jolly/Pike's Creek**

| Year | Number of Users |
|-------------|------------------------|
| 2018 | 1,234 |
| 2019 | 676 |
| 2020 | 1,439 |
| 2021 | 1,433 |
| 2022 | 1,333 |
| Avg. | 1,223 |

With the exception of 2019, use at Jolly/Pike’s Creek has been fairly consistent over the past five years. Use in 2022 was very similar to the Covid influenced seasons of 2020 and 2021.

- Lost Creek Falls Trail. Upgrades to the Lost Creek Falls trail began in 2015. Accomplishments over the past five years, include, but are not limited to: over 1,600 feet of new hand built trail; nearly 1,300 feet of new boardwalk, some with hand rails; nearly 40 feet of new foot bridges; nearly 1,000 feet of gravel on new and existing trail surfaces; upgrades to and expansion of the trail head parking area; installation of new trail signs and markers; installation of a new informational kiosk; removal or trimming of potentially hazardous or threatening trees; and the installation of location/directional signs on County Highway C. To date, the total cost of improvements has been just under \$60,000.

Table 30 summarizes the total use of the Lost Creek Falls trail, from the Trail Dr. trail head location, since 2016.

**Table 30: Trail Counter Summary
Lost Creek Falls¹**

| Year | Number of Users |
|-------------|------------------------|
| 2016 | 6,327 |
| 2017 | 7,193 |
| 2018 | 5,468 |
| 2019 | 5,105 |
| 2020 | 14,648 |
| 2021 | 16,562 |
| 2022 | 10,298 |
| Avg. | 9,372 |

¹ Number of individual users from Trail Dr. trailhead.

The amount of use at Lost Creek Falls continues to impress. Presumably, the massive increase in use in 2020 and 2021 was significantly influenced by Covid-19 and the resulting surge in outdoor recreation. Total use in 2022 decreased by nearly 40%, but was still nearly double the pre-Covid usage.

The average use of the trail has increased from about 2 users per day prior to improvements (averaged throughout the year) to nearly 30 users per day in 2022. The exceptional amount of use has also created the need for additional maintenance.

Since 2016, a counter has been installed on the trail near the trailhead as a means to monitor use. Actual use would most likely be a little higher as the counter only monitors access from the primary parking area off Trail Drive. The falls are also accessible from the snowmobile trail off Klemik Road, which is not captured by the counter and still attracts some users looking to approach the falls from a different way.

More boardwalk and/or gravel will be needed on the Lost Creek Falls trail in the future to minimize pressure on the landscape, while continuing to provide an enjoyable and sustainable hiking trail.

In 2019, an \$11,000 Recreational Trails Program (RTP) grant was awarded for various trail construction/rehab work on the Lost Creek Falls trail. These are federal funds administered through the DNR. A 50% project match is required and was budgeted in 2020. However, most capital projects were temporarily frozen to address budget concerns involving Covid-19. The project was completed in 2022 and primarily addressed a few wet areas on the trail, as well as steps/stairs, or similar access features, to the river. However, some funds still remain and will be used to touch-up portions of the trail this spring.

In 2021, the Department worked with the Highway Department and the Town of Bell to upgrade the existing parking area and establish an overflow parking lot. The existing cul-de-sac located at the end of Trail Drive was improved to allow parallel parking. Parking congestion has been one of the most pressing issues at this very popular location.

Numerous projects were completed in 2022, including:

1. Installation of a new concrete vault style restroom facility near the primary parking area off Trail Dr. The restroom was installed in June 2022.
2. Steps were constructed from the trail to the stream.
3. A picnic area and boardwalk were constructed a short distance from the steps to the falls.
4. Minor trail improvements, including sign installation were also completed in 2022.

Additional trail improvement projects are anticipated in 2023, including addressing excessive tread wear, which will likely involve the placement of gravel; addressing unauthorized and unsustainable user created trails, likely with signs and barriers; and new signs and kiosk materials. There is also an opportunity to investigate the potential for the development of new hiking trails that could provide additional options for those looking for a longer hike.

- Lake Access Projects: in late 2020, the Department complete what is expected to be the first of many improved lake access projects. The first was Perch Lake, a small, roughly 21 acre lake located in the Town of Bell. In general, the goal of a lake access project is to improve public accessibility to the water feature. Generally involving an improved motorized access road and parking area, an informational kiosk and a new or improved non-motorized access path to the lake. At Perch Lake, an existing access road was improved, as was a small parking area. An informational kiosk and sign markers were installed in 2022. An additional walking path and/or picnic table may also be installed in the future, depending on use pressure. A similar lake access project was completed near Bismarck Lake in Iron River. A kiosk and sign markers will be installed at this location in 2023. Other lake access projects currently being considered include: Pine, Richardson, and Carroll.
- Swenson Forest Preserve/Siskiwit Falls. In 2018, with much assistance from the Bayfield Regional Conservancy (now Landmark Conservancy), Bayfield County acquired roughly 103 acres of land in the Town of Bell, adjacent to the Siskiwit River. The property was purchased with a NOAA CELCP grant (administered by Wisconsin Coastal Management) and matching funds from donations and landowner bargain sales (all secured by the Conservancy).

Bayfield County ultimately agreed to accept ownership of the property (the Siskiwit River Estuary Protection project, as titled in the grant) for primarily two reasons: 1) in recognition of the unique and exceptional natural resource values contained throughout the parcels, including numerous waterfalls on the Siskiwit River, as well as ecologically significant forests and wetlands, and agreed that these values should be protected and conserved; and 2) in recognition of the current public use values and future potential of the property, as individuals and families have enjoyed recreating on these parcels for generations.

As part of the acquisition, the county also agreed to receive and administer the NOAA CELCP grant. The overall goal of the grant was to provide permanent protection and conservation of the ecological, recreational, historical and aesthetic resources of this unique site.

The grant award was in the amount of \$186,841 for land acquisition and \$7,932 for construction/infrastructure costs (i.e. parking lot development, access road improvements, signs, etc). These funds required a match from the recipient. A combination of the grant funds, donations received by Landmark Conservancy and a bargain sale from the landowners were used to purchase the property. The total cost of the acquisition was a little over \$305,000 (including all associated fees, taxes, survey work, etc.).

By accepting these funds, the county was mandated, by the terms of the grant, to manage the property in a manner that will preserve the qualities of these values. In addition, eventually a conservation easement with the Conservancy will be recorded on this property. This easement will further require the county to ensure the protection and conservation of these various important resources. The entire property was re-zoned to W Conservancy in 2018.

Some of the major goals accomplished since 2019 include:

- Primary Parking Lot Development. Located on the east side of the river. This area will serve as the primary trail head/entry to the property.
- Secondary Parking Lot Development. Located on the west side of the river. This area is intended to serve as the primary access point to the falls located across the road. Having two parking areas should reduce the amount of foot traffic on Siskiwit Falls.
- In 2019, two \$30,000.00 grants, an Acquisition and Development of Local Parks (ADLP) Knowles-Nelson Stewardship grant and a Wisconsin Coastal Management grant (NOAA), were awarded to the Department. Funds from each grant will be used to repair and improve the existing fisherman/hiking trails located adjacent to or near the Siskiwit River. The funds will also be used to purchase signs and informational kiosk materials.
- A short hiking trail was mowed in the old hay field. This was accomplished via a partnership with the Town of Bell. The Town also mows the parking areas in the summer and plows the access road to the primary parking area in the winter.
- In 2020, planned trail improvement work located on the east side of the river was completed, including: widening and armoring (adding gravel) the existing tread; removing hazard trees; brushing the trail corridor; creating a new switchback trail on the northern most end of the trail; adding steps near the Town Road; and installing a short boardwalk on a wetter portion of the trail. In addition, a few signs/markers were also installed.
- In early 2021, an elevated boardwalk was constructed over a wet and narrow portion of the existing trail. This boardwalk was the major last piece needed to stabilize the existing fisherman trail located along the river.
- In summer 2021, Landmark Conservancy hosted a celebration event in honor of the previous landowners and those who contributed to this project. As part of that event, an informational kiosk and numerous interpretive signs were installed.
- Also in 2021, roughly 1 acre of the old apple orchard located along the eastern most portion of the property was treated. The Highway Department used an ASV with brush/mulching attachment to remove thick underbrush. This allowed direct access to roughly 60 apple trees. These trees will be part of a rehabilitation project slated for 2023.
- The Department is working with Chequamegon Audubon to install and maintain

numerous bird and bat houses on the property, primarily near the meadow, east of the river.

- The Department is also collaborating with the WDNR regarding the restoration of the old roughly 7 acre meadow, with the goal of establishing and maintaining a native prairie. The first site preparation prescribed burn is expected to occur in 2023.
- Some of the more noteworthy accomplishments in 2022 include:
 - Installation of a new concrete vault style restroom facility adjacent to the primary parking area (east side of river). The restroom was installed in June 2022.
 - With assistance from the Highway Department, additional trails were constructed on the west side of the river. These are shorter loop trails, but provide additional hiking opportunities.
 - Also with assistance from the Highway Department, an additional trail was constructed on the east side of the property, from the meadow and through the apple orchard. This also included the construction of a small bridge. This work was accomplished with assistance from Cornucopia Trails Club (CTC) volunteers.
 - The Department entered into an agreement with Bayfield Nordic to groom cross-country ski trails within the old meadow and the new trail through the orchard. The meadow was groomed throughout the 2022/23 ski season, but the orchard loop was determined to be too narrow to facilitate skiing. A trail counter was installed to monitor use. This information is still in the process of being summarized, but there was a total of nearly 1,500 uses during the ski season (which is positive considering each full loop was approximately ½ mile).
 - In partnership with the Town of Bell, the town continues to mow near the parking area and plow snow in the eastern parking area.
- New entrance signs and trail markers were ordered in 2021/2022 and will be installed in 2023. Additional trail work is also planned on both sides of the river.
- For detailed information on future plans for the Siskiwit property, see the 2023 Annual Work Plan.

Table 30a summarizes the total use at Siskiwit Falls, from access located on the east side of the river, since 2019.

Table 30a: Trail Counter Summary
Siskiwit Falls

| Year | Number of Users |
|------|-----------------|
| 2019 | 1,638 |
| 2020 | 5,899 |
| 2021 | 9,233 |
| 2022 | 6,901 |
| Avg. | 5,918 |

The trail counter is located on the entrance road leading to the primary parking area on the east side of the river. As such, it tracks the number of entries into the property, rather than counting individual uses on the trail.

A total of 6,901 uses were registered in 2022, which was a decrease of roughly 25% when compared to 2021. The decrease in use is likely attributed to the post-Covid normalization process. Also, since there is a smaller parking area on the west side of the river, in conjunction with recent new trail improvements, some of the use that would have occurred on the east side has shifted there. And there isn't a trail counter on the western parking area to monitor use.

Since the trail counter essentially registers vehicles, it's a little more difficult to quantify the actual number of people that recreated on the property. However, if assuming an average of two people per vehicle, a total of nearly 14,000 people visited the property in 2022. The actual number of visitors is likely much higher when considering the amount of use that occurred on the west side of the property.

- Fire Hill Preserve. In October 2018, the Department once again partnered with Landmark Conservancy on another potential land acquisition project. The Fire Hill Preserve Project is located in the Town of Bayfield and contains approximately 104 contiguous acres of forested land. To purchase the property, the Conservancy and Department collaborated on the development and submission of a Wisconsin Coastal Management land acquisition grant application (Landmark also submitted a Stewardship grant application).

If awarded, the grant would cover 40% of the cost of acquisition, with the applicant required to pay the remaining 60%. As part of required applicant match, the Conservancy has secured funds through donations and other grants (Stewardship), as well as a bargain sale from the current landowner, to cover the entire amount. The total project was estimated to cost nearly \$226,000, with little to no out of pocket expense from the county.

In December 2019, the county was awarded the Wisconsin Coastal Management grant. On December 27, 2019, the project officially closed. In early 2020, ownership of the Fire Hill property was conveyed to Bayfield County. Little work has been accomplished on the property since the initial purchase

Throughout 2023, the Department will begin the process of developing short and long term goals and objectives for the property (while collaborating with the Conservancy and Wisconsin Coastal Management, as well as the Town of Bayfield).

In general, the property will be managed as part of the county parks program. Most likely as a day use facility, with excellent potential for non-motorized recreational opportunities. The property is extensive, is located in an area that is frequented by a lot of people (situated in the middle of orchard/berry farm country within the Bayfield Peninsula) and contains an excellent existing road network for primary accessibility (most of which is paved).

A new entrance sign for the property was purchased in 2022 and will be installed in 2023 or whenever the best location for the sign is determined.

Please refer to the 2023 Work Plan for more information on plans for Fire Hill.

There are numerous other organized recreational events and/or activities that utilize portions of the county forest. For example, Iron River Chamber hosts the increasingly popular Northern Pines Sled Dog race, which almost exclusively utilizes trails on county forest land located in the Town of Iron River. Every year, the Department works closely with all user groups on the maintenance of and/or improvements to existing trails.

Periodically, new trails or re-routes are also addressed. All are treated on a case by case basis, with larger projects needing Committee approval. Groups are also informed of current or future timber sale activities located adjacent to or in the vicinity of designated trail networks. Occasionally, slight timber sale modifications may be incorporated into the sale design, and are treated on a case by case basis. The Department is also incorporating trail counters on some of the more significant recreation networks with the goal of better understanding use. Information obtained from the counters will also be very beneficial for future planning and development efforts.

Recreation - Yurts

During the summer of 2016, two yurts were constructed on county forest land. One yurt was constructed in the Cable area and one near Mt. Ashwabay (now named Evergreen – it’s green in color). In late summer of 2018, a third yurt was constructed, a little north of the first one located near Mt. Ashwabay (named Terra Cotta – reddish clay in color).

Table 31 summarizes the rates of occupancy and total net revenues per yurt from 2016-2022.

Table 31: Yurt Occupancy (Nights Rented) and Total Net Revenue¹

| Year | Bayfield - Evergreen ² | | Bayfield - Terra Cotta ³ | | Cable ⁴ | | Total | |
|-------------|-----------------------------------|-------------|-------------------------------------|-------------|--------------------|-------------|-----------|-------------|
| | Occupancy | Net Revenue | Occupancy | Net Revenue | Occupancy | Net Revenue | Occupancy | Net Revenue |
| 2016 | 42 | \$2,369 | 0 | \$0 | 15 | \$838 | 57 | \$3,207 |
| 2017 | 269 | \$15,641 | 0 | \$0 | 168 | \$9,905 | 437 | \$25,545 |
| 2018 | 260 | \$14,841 | 30 | \$1,712 | 180 | \$11,452 | 470 | \$28,006 |
| 2019 | 255 | \$15,982 | 238 | \$16,115 | 167 | \$10,357 | 660 | \$42,454 |
| 2020 | 208 | \$13,754 | 214 | \$14,151 | 194 | \$11,897 | 616 | \$39,801 |
| 2021 | 318 | \$21,415 | 329 | \$21,870 | 236 | \$16,133 | 883 | \$59,418 |
| 2022 | 258 | \$18,732 | 259 | \$19,105 | 172 | \$13,432 | 689 | \$51,269 |
| Total | 1,610 | \$102,733 | 1,070 | \$72,953 | 1132 | \$74,014 | 3,812 | \$249,701 |
| Avg. (3 yr) | 261 | \$17,967 | 267 | \$18,375 | 201 | \$13,821 | 729 | \$50,163 |

¹ The following fees/taxes apply to each reservation: Airbnb 3%; State sales tax 5.5% (Airbnb started collecting state sales tax in 2018);

Cable room tax 4% (only at Cable location); Bayfield room tax 6.5% (only at Bayfield locations).

² The Bayfield - Evergreen location went live on October 8, 2016.

³ The Bayfield - Terra Cotta location went live in September 2018.

⁴ The Cable location went live on November 12, 2016.

In 2020, all three yurts were temporarily closed through a portion of March and nearly all of May in response to the Covid-19 pandemic (for a total of about 40 days each). In addition, throughout the month of May and into June, the yurts were occasionally closed to allow for more thorough cleaning and resting in between reservations. As a result, each yurt was closed for a total of about 65 to 70 days throughout CY 2020. Not surprisingly, there was a slight decrease in total occupancy rates at both Bayfield locations. In contrast, occupancy rates actually increased at the Cable

location, primarily due to the stronger demand for outdoor recreational opportunities (and the fact that the occupancy rates in Cable had traditionally been much lower than those at both Bayfield locations).

In 2021, occupancy rates were at an all-time high, far surpassing the Covid influenced 2020 season, but also exceeding the pre-Covid season of 2019. However, as expected, there was a slight decrease (roughly 14%) in occupancy in 2022, likely due to post-Covid normalization. Even so, the total revenue collected in 2022 was the second highest total to date at \$51,269.

Occupancy of the Terra Cotta and Evergreen yurts were nearly identical in 2022, at 259 and 258, respectively. A total of 172 nights were rented at the Cable location. This represents occupancy rates of 71%, 71% and 47%, respectively.

An average of 3 to 4 people stay at the yurt as part of each reservation. Using an average of 3.5 people per night and 517 nights rented, combined, in 2022 a total of roughly 1,800 people stayed in the Bayfield yurts and recreated on the surrounding county forest.

Occupancy at the Cable yurt has traditionally been much lower than that experienced at Bayfield locations. Using the same average rate of occupancy as the Bayfield location, at 3.5 people per night and 172 nights, in 2022 a total of over 600 people stayed in the Cable yurt and recreated in the surrounding county forest.

When combining all yurt locations, a total of 689 nights were rented in 2022. This represents an average combined occupancy rate of roughly 63%.

As part of the process, the yurts are subjected to taxes (state, local and room taxes), as well as fees from Airbnb. Airbnb charges a flat rate of 3% per transaction. Airbnb now also collects state and local taxes (which are now paid by the renter, as part of the total fee associated with renting a yurt). The room tax for the Town of Bayfield is 6.5% and the room tax for the Town of Cable is 4%.

For more detailed information on the yurts, please see the 2023 Work Plan.

PARTNERSHIP WITH THE DNR

In accordance with s. 28.11, the DNR oversees the county forest program. As per that partnership, the DNR provides an abundance of professional, technical and financial assistance to counties having lands entered in the county forest program. As part of the technical assistance, the DNR allocates a total of 46,000 hours, statewide, to counties having lands enrolled in the county forest program.

The amount of technical assistance (termed “time standards”) dedicated to each county is determined through a fairly complex formula. Past, present and future workloads are incorporated into the formula to determine the level of assistance required by each county.

Timber sale establishment, reforestation, regeneration monitoring, reconnaissance, timber sale administration, road and trail maintenance, as well as time associated with certification, work planning, various meetings, other professional services, and all associated paperwork (and more) are

all part of the calculation. If the total request from all counties exceeds the roughly 46,000 hour annual threshold, a general proration is adopted to equally adjust the final figure accordingly.

Time standards were re-calculated in Fiscal Year 2023 (in CY 2022). On the Bayfield County Forest, the annual time commitment allocated by the DNR to the county, after the pro-rate is applied, was calculated at 4,271 hours (time standards were pro-rated to 3,640 hours per year from FY 2020-22). The significant increase in hours was a direct reflection of the growth in various forest management programs that occurred over the past five+ years, including, but not limited to: timber sale establishment, timber sale administration, reforestation, regeneration monitoring (including CRS), forest reconnaissance (compartment and stand inventory), invasive species control, and increases in prescribed fire associated with barrens management.

As part of the annual time commitment, the DNR provides assistance in a variety of areas, including, but is not limited to:

1. Establishment of timber sales. Roughly 20% to 25% of the annual sustainable harvest goal is accomplished by DNR foresters.
2. Forest reconnaissance (both compartment and stand updates).
3. Forest stand data entry (WisFIRS, see below) and maintenance.
4. Continuous Forest Inventory (CFI) plot sampling/data collection.
5. Regeneration monitoring, both artificial and natural.
6. Timber stand improvements (TSI).
7. Timber sale administration.
8. Mechanical site preparation for natural regeneration.
9. Mechanical site preparation for artificial regeneration.
10. County forest road and trail construction and maintenance.
11. Road right of way and wildlife (game) opening mowing/maintenance.
12. Prescribed burning.
13. Support from professional forest management specialists, including forest hydrologists, wildlife biologists, forest ecologists, forest health specialists, GIS specialists, etc.
14. Support, manage and administer the county forest group certifications, for both SFI and FSC (both forest certificates are administered by the DNR through a group format).
15. Assistance in the development and maintenance of the comprehensive land use and annual work plans.
16. Function as a catalyst for the transfer of technology and professional or scientific information, as well as providing opportunities for training or enhancement.
17. Financial support through various grants, aids and loans.

FOREST CERTIFICATION

The Bayfield County Forest is dual, third party certified (as part of the Wisconsin County Forest Program group certificates, which are managed by the DNR). For the past ten plus years, the Department has maintained forest certificates with both SFI (Sustainable Forestry Initiative) and FSC (Forest Stewardship Council). The DNR maintains all aspects (administratively and financially) of both the SFI and FSC group certificates.

The standards, principles and/or strategic direction of each non-profit, independent forest certifying body are developed by their respective board members and staff, which include representation from conservation organizations, academia, tribal entities, family forest owners, private forest landowners, public forest landowners and the forest products industry. Each certifying organization is further structured into three sectors (SFI) or chambers (FSC), incorporating environmental, social and economic components. This diversity reflects the wide variety of interests in the forest management community.

As part of certification, the county forest management program is audited annually against the strict standards, guidelines and principles of each independent organization. To date, every year, Bayfield County has either met or exceeded each standard.

In August 2019, Bayfield County was one of four counties selected for a full re-certification audit (Douglas, Ashland and Barron were the other three counties).

The results of the audit were nearly perfect. Both SFI and FSC issued zero corrective actions (neither major nor minor) and reported zero opportunities for improvement. The county forest program received numerous accolades and commendations. All of which is extremely rare in a full re-certification audit and a reflection of a high quality forest management program administered by Bayfield County.

In 2022, as part of the routine annual certification audit for both SFI and FSC, the Wisconsin County Forest program received minor opportunities for improvements (OFI's) regarding special site designations and describing high conservation value forests (if applicable). The DNR will be working with the WCFA to best address these opportunities for improvement.

Maintaining forest certification isn't a mandate. The Department invites each certifying entity to analyze and scrutinize our management of the forest. We ask them to subject our forest management practices, plans and principles to their strict, rigid and dynamic internal standards, principles and guidelines. Maintaining one certificate, let alone two, is a significant commitment and demonstrates the county's desire to assure the public that we have some of the best managed forests in the country. The Department will continue working with each independent certifying body, as well as the DNR.

The results of the audit also help to solidify and to reaffirm that the county forest is sustainably managed, not only to the standards and expectations of those auditing and overseeing the program, but also to the professional principles and values exhibited and demanded by all staff members within the Department. Bayfield County continues to maintain dual certification through both FSC and SFI.

This collaboration will help to ensure that the county forest is sustainably managed, not only to the standards and expectations of those auditing and overseeing the program, but also to the professional principles and values exhibited and demanded by all staff members within the Department.

FOREST CARBON PROJECT

Forest Carbon Assessments and Marketing

The County Forest provides an important ecosystem function in the form of carbon sequestration, or the uptake and storage of carbon in trees, shrubs, vegetation and associated wood products. The carbon sink in forests and wood products helps to offset sources of carbon dioxide released into the atmosphere i.e. as created by activities such as deforestation, forest fires, and fossil fuel emissions. Awareness of, or emphasis on, carbon sequestration has evolved over time, especially as concerns regarding a potentially changing climate and subsequent negative impacts have commanded more attention.

Sustainable forest management practices, such as those currently prescribed by the Department, can increase the ability of the forest to sequester atmospheric carbon, while still producing and/or enhancing other core ecosystem services i.e. timber products; recreational opportunities; wildlife habitat; improved soil and water quality. Harvesting and regenerating forests can also result in improved net carbon sequestration in wood products and new forest growth, especially when compared to other alternative land uses. Interest in forest carbon sequestration projects has also increased, as entities explore options or opportunities for climate change mitigation.

Over the past few decades, carbon markets have emerged as one option to address climate change related concerns. The voluntary retail carbon market continues to evolve, especially as an increasing number of individuals, governments, companies, and similar entities pledge and/or seek to reduce their carbon footprints or become carbon neutral.

In response to the various (and often significant) commitments to reduce carbon dioxide emissions, carbon is now a priced and valuable environmental commodity in the global marketplace, with offsets available for purchase within the carbon markets. By allowing the broader public to engage in climate protection, the voluntary market has the potential to further advance societal awareness of carbon emissions, the potential impacts of climate change and the significance of consumer action and/or behavior.

Data regarding carbon sequestration is collected as part of the CFI program. Information from the CFI program can be used to develop, assess and analyze carbon stocks and trends on the County Forest (or carbon accounting). Carbon stock and trend information, in conjunction with other similar assessments on forest carbon, can help the Department better understand the correlation between carbon storage, previous management practices and disturbance impacts.

In February 2021, Bayfield County officially approved moving forward with a forest carbon offset/marketing project that would involve most of the county forest (roughly 158,000 acres), but only if it was determined to be a good fit with the current mission of the Department, and it didn't conflict with County Forest Law. After both contingencies were satisfied, in early April 2021, Bayfield County entered into an agreement with Bluesource, LLC (now called ANEW) to help develop, register, verify and administer the project.

ANEW will assist the county in all aspects of the carbon project including, but not limited to: development, listing, inventory (a total of 446 CFI plots and associated data will also be used as

carbon inventory plots), growth and yield monitoring, verification, registration, maintenance, administration, and marketing. The agreement with ANEW will be for the first 10 years of the project (with an exclusive option to extend), but the terms of use with ACR will be for a 40 year period.

The results of any forest carbon project could have the potential to alter and/or modify certain approaches or strategies regarding the sustainable management of the County Forest, as determined by the Administrator and/or Committee. It also has the potential to positively impact the budget. Depending on the amount of carbon offsets available to market, as well as the price per unit during the time of sale, Bayfield County could realize a significant new source of revenue.

The carbon project is expected to be fully verified and registered by ACR by June 2023. Once the project is verified and registered, the first sale from the issuance of carbon credits is expected to occur in Q3 or Q4 2023. In addition, all expenses associated with the carbon project are addressed in the payment to the county. As such, there will be no direct, budgeted expenses associated with this carbon project.

Below are some of the more noteworthy accomplishments in 2022 and anticipated workloads associated with the carbon project in 2023:

- Project Development and Marketing – Ongoing. The marketing phase has been ongoing throughout much of 2022 and into early 2023. Marketing will continue to increase as the project gets closer to completion. The Department is working closely with the ANEW marketing team on the development of marketing and promotional materials and will continue to collaborate throughout 2023.
- CFI Plot Re-Measurement – Ongoing. The project reporting period is April 1 through March 31 every year. As part of the reporting process, the Department is required to provide information on all significant disturbance related activities throughout the project area. Disturbance can include timber harvests, natural events (like wildfire, windstorms, insects and disease outbreaks, etc), or similar activities where a significant number of trees have been removed or died. The Department is required to keep track of all CFI plots where disturbance occurred and report updated information to ACR (through ANEW).
 - The total number of CFI plots that will require a re-measurement is expected to be around 20 to 25 per year.
- Third-Party Verification and Site Audit – Completed Summer 2022 (late June/early July). The project area was audited by a team of ANEW, ACR and third-party contractors to determine initial compliance. This initial project audit took roughly one week. The project passed the site audit and, as of early May 2023, was still under final review by ACR.
- Project Registration and Carbon Credit Issuance – In Process. Anticipated Completion by Early Summer 2023 (June 2023). If the project is determined to be in compliance, it will be officially registered with ACR. Shortly after the project is registered, carbon credits are issued and sold.
 - Once officially registered, roughly 158,000 acres of the Bayfield County Forest would be participating in the voluntary carbon market under the American Carbon Registry (ACR) Improved Forest Management (IFM) program. As of early 2023, the Bayfield County Forest is still one of the largest public forests in the nation to participate in the voluntary carbon market.

- Carbon Revenue. The first carbon credit payment is expected to arrive in Q3 2023.
- Forest Carbon Offset Reserve Fund (FCOR): Completed March 2023. Throughout 2022, the Department worked on establishing a plan to re-invest a portion of future carbon returns in nature, green, or outdoor based projects. The FCOR describes three primary categories that would be targeted for investment: Forest Management; Recreation; and Land Acquisition. A total of up to 40% of the first three full carbon offset payments would be directed to each category as summarized in the FCOR. The Carbon Offset Reserve Fund, which includes the FCOR, was approved in March 2023.
- Reporting. Ongoing. Routine and regular reporting will also be part of the carbon project. This will include plot re-measurements (as described above), as well as supporting documentation as requested by the ANEW and/or ACR.

The project verification and site audit required a significant level of staff time and resources in 2022. Site audits are only expected to occur every ten years, so will not be a significant annual workload. While the actual annual workloads are still relatively unknown, CFI plot re-measurement and reporting will become an annual occurrence. Once a full year has been completed, which would include the marketing and sale of carbon credits, the actual time required to manage the carbon project will become more clear.

The recognition of forest carbon is yet another important variable to consider when developing sound sustainable short and long-term management strategies for the County Forest.

PERMITTED USES

Permits are issued by the Forestry and Parks Department for events, rights-of-way, timber storage, private property access, firewood, miscellaneous forest products, and other recreational activities.

Table 32 displays a summary of permits issued on the forest from 2015 through 2022 (a summary of permitted rec events can be found in Table 27).

Table 32: Bayfield County Forest Summary of Issued Permits and Approvals

| Year | Fire Wood | Balsam Boughs | Cones | Christmas Trees | Access | Events | Disabled Hunting | Storage |
|------|-----------|---------------|-------|-----------------|--------|--------|------------------|---------|
| 2015 | 394 | 8 | 5 | 5 | 10 | 18 | 9 | 1 |
| 2016 | 331 | 10 | 3 | 4 | 6 | 17 | 10 | 1 |
| 2017 | 285 | 19 | 1 | 4 | 7 | 19 | 6 | 1 |
| 2018 | 250 | 12 | 2 | 6 | 11 | 23 | 9 | 1 |
| 2019 | 284 | 10 | 2 | 5 | 4 | 24 | 4 | 2 |
| 2020 | 278 | 11 | 2 | 6 | 5 | 7 | 5 | 1 |
| 2021 | 226 | 6 | 3 | 8 | 6 | 16 | 6 | 1 |
| 2022 | 264 | 7 | 2 | 9 | 4 | 23 | 2 | 1 |
| Avg. | 289 | 10 | 3 | 6 | 7 | 18 | 6 | 1 |

Firewood comprises the vast majority of the total permits issued on an annual basis. In 2022, 264 firewood permits were issued, which was an increase of roughly 17% when compared to 2021.

Firewood permits are free of charge and are available online. Nearly all of the permit applications come via the website.

Permits for balsam boughs, Christmas trees and cones were nearly identical to last year. However, there was a decrease in access permit requests, as well as disabled hunter permits.

The Department is also still in the exploration stages of developing a maple sugaring permit system, where low/poor quality hardwood stands could be tapped for maple syrup production. A pilot maple tapping project was approved in 2019, though, due to limited participation and then Covid-19, was extended through the 2023 season. While there is some potential for an expanded tapping program, the amount of resources available to develop a more robust program has been somewhat limited. Work on the development of a maple tapping program will continue in 2023, as time and resources allow.

Sand and Gravel

Sand and gravel is extracted and sold from county managed pits, to be used on approved municipal projects. All projects are reviewed and acted upon by the Committee.

The Department maintains two pits on the county forest: the largest one being in the Town of Bayfield, commonly referred to as the Sand River Pit (which is also where the staging of the Apostle Islands Sled Dog Race was held); with a smaller one off the end of Tulip Lane, in the Town of Russell. These pits are primarily used by local municipalities, as well as the Red Cliff Tribe, for the maintenance of local infrastructure. Over the past few years, the Committee has approved the temporary storage of power line infrastructure as Xcel Energy continues work on local electrical grid upgrades.

Table 33 displays the total amount of sand and gravel and revenues received from 2014 through 2022.

Table 33: Sand and Gravel Summary

| Year | Yards | Value |
|-------------|--------------|--------------|
| 2014 | 11,000 | \$16,500.00 |
| 2015 | 0 | \$0.00 |
| 2016 | 0 | \$0.00 |
| 2017 | 12,750 | \$19,125.00 |
| 2018 | 0 | \$0.00 |
| 2019 | 0 | \$0.00 |
| 2020 | 0 | \$0.00 |
| 2021 | 21,398 | \$20,328.10 |
| 2022 | 0 | \$0.00 |
| Avg. | 5,016 | \$6,217.01 |

All revenue received from the sale of sand and gravel is deposited in a non-lapsing account for eventual site reclamation activities. This was as per a 5-year agreement with the Towns of Bayfield and Russell, and the Red Cliff Tribe, for harvesting and crushing material at the Sand River Pit.

There was no mining activity in the pits in 2022. As displayed in Table 33, activity in the pits is highly variable and generally occurs once every few years.

WILDLIFE HABITAT IMPROVEMENT/MONITORING

Forest openings, dominated by forbs and grasses, are important habitat for a great diversity of wildlife species. Since the mid 1970’s, numerous, small forest openings have been maintained on the forest to encourage this diversity of habitat. The openings are relatively small in size (average about 1 acre) and are spread throughout the county forest (although they are more numerous in the Bayfield peninsula). Each opening is treated about every five years to discourage encroaching woody vegetation.

Table 34 displays a summary of the wildlife opening maintenance program, performed on county forest land, from 2013 through 2022.

Table 34: Summary of Maintained Wildlife Openings on County Forest Land

| Year | Mowed Number | Mowed Acres | Hand Treated ¹ Number | Hand Treated ¹ Acres | Total Number | Total Acres |
|---------|--------------|-------------|----------------------------------|---------------------------------|--------------|-------------|
| 2013 | 59 | 52 | 63 | 53 | 122 | 105 |
| 2014 | 34 | 40 | 48 | 25 | 82 | 65 |
| 2015 | 24 | 32 | 50 | 55 | 74 | 87 |
| 2016 | 51 | 36 | 47 | 33 | 98 | 68 |
| 2017 | 37 | 44 | 46 | 36 | 83 | 80 |
| 2018 | 94 | 97 | 19 | 13 | 113 | 110 |
| 2019 | 69 | 71 | 18 | 9 | 87 | 80 |
| 2020 | 15 | 17 | 37 | 37 | 52 | 54 |
| 2021 | 63 | 44 | 20 | 15 | 83 | 59 |
| 2022 | 60 | 62 | 0 | 0 | 60 | 62 |
| Average | 51 | 49 | 35 | 27 | 85 | 77 |

¹ using a mix of herbicide and hand cutting

In 2022, 60 wildlife openings, covering 62 acres were mowed. While 0 openings were treated with a mix of chemical and hand cutting. Openings are typically scheduled for maintenance four out of every five years. It is anticipated that most openings will be mowed in the future, while those treated with chemical will generally only be considered if experiencing significant encroachment or presence of invasive species. All work was completed by DNR staff, using a combination of DNR and county equipment.

In 2008, a breeding bird monitoring project was developed for the county forest. In 2008 and again in 2009, 350 permanent diurnal and 40 nightjar points were completed. An additional 297 diurnal and 17 nightjar points were taken in 2010. The remaining portion of the forest was completed in the spring of 2011. In total, 1,200 diurnal and 200 nightjar points have been taken.

In 2018, the Department contracted with the Natural Resource Research Institute (University of Minnesota-Duluth) to analyze the bird survey data and develop a functional application that would utilize the information. The result was the development of a shiny app and summary report. The

application will be used to measure bird/habitat associations, anticipate how forest management may influence these relationships and predict general species occurrence. The report also provided recommendations for future work/analysis. In 2019, the app was in the process of being installed on county servers. After addressing numerous technical issues, that work was completed in early 2021.

The Department is still periodically working with the DNR and other resource professionals to assist in additional/supplemental bird and/or other wildlife monitoring projects.

Wildlife Projects in the Barrens Management Areas (BBMA and BLBMA). One related project involves the use of conspecific attraction to help in the monitoring for the presence of Kirtland's Warblers in the Barnes Barrens Management Area. Conspecific playback literally involves the broadcasting of the primary songs of a species, with the aid of sound equipment, to encourage individuals to settle in an area.

In 2014, the DNR detected one male Kirtland's Warbler, with no females or nesting being located. In 2015, three males were detected, with no females or nesting being located. In 2016, the first confirmed nesting and successful fledging of Kirtland's Warblers in Bayfield County occurred in the Barnes Barrens Management Area (BBMA). All five nestlings successfully fledged. In 2017, three males were observed (one of those males was a banded 2016 nestling). However, no females or nest activity was located in 2017. A male and female nested in 2018 and hatched five young. Unfortunately, the nest failed due to an unknown cause.

In 2019, one banded male returned to the site, but did not locate a female and did not nest. No other Kirtland's were observed in 2019. The project was not continued in 2020 due to Covid-19 related field restrictions. A solitary Kirtland's was heard singing in 2021, but a nest was never confirmed. In 2022, field work was designated in another location and did not include BBMA. Some birds were observed and a nest discovered, but fledgling success was not confirmed.

The Barnes Barrens Area provides excellent potential habitat for the endangered Kirtland's Warbler. If breeding success continues and an extensive population begins to develop, this area will be a prime example of how intensive, sustainable forest management can provide critical habitat for a variety of rare species.

The Barnes Barrens Area also contains one of the highest populations of sharp-tailed grouse in Wisconsin. In 2017, partly as an attempt to maintain the genetic diversity of the sharp-tailed grouse population in the Moquah Barrens, the DNR, in partnership with numerous other agencies, trapped over 200 birds in NW Minnesota and released 67 of them in the barrens.

One of those birds (a radio collared female) made her way down to the Barnes Barrens Area core area, promptly established a nest site, mated, laid 10 eggs, and hatched at least six chicks. An indirect accomplishment through a joint effort of numerous partner agencies with the goal of maintaining a healthy and genetically diverse population of sharp-tailed grouse.

The Department is currently collaborating with NRRI, the DNR and USFS regarding a sharp-tailed grouse banding project. Data received from such a project will be used to provide information on movement within the barrens and how stands are being utilized, on a daily basis, by the birds. The

results could also be used to develop new or modify existing forest management strategies within the barrens, with the goal of optimizing habitat. Work on this project began in 2021 and continued through 2022. See the Barnes Management Area section above (page 30) for more detailed information on accomplishments within the BBMA and BLBMA.

The BBMA has been very well received by the professional community. The plan has been viewed as a ground-breaking model that blends sound, landscape level forest (pine barrens) management, with the maintenance and development of optimal and perpetual wildlife habitat for a variety of species, including many of greatest conservation need.

FINANCIAL ASSISTANCE – GRANTS AND AIDS

Financial assistance plays a major role in helping to achieve annual and long-term objectives.

Table 35 outlines some of the major grants and aids awarded to the Department over the past decade (2018 through 2022). Every award listed in the table, with the exception of the Arbor Day and FEMA grants, has come from the State of Wisconsin.

Table 35: Bayfield County Forestry and Parks Department Summary of Major Grants and Aids¹

| Year | 2018 | 2019 | 2020 | 2021 | 2022 | Average |
|-------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|
| County Forest Administrator | \$52,938 | \$60,704 | \$67,100 | \$70,349 | \$65,860 | \$63,390 |
| Wildlife Habitat² | \$8,058 | \$20,057 | \$53,192 | \$102,395 | \$21,015 | \$40,943 |
| DOT Road Aid | \$11,849 | \$11,836 | \$13,327 | \$13,309 | \$13,327 | \$12,730 |
| Sustainable Forestry | \$0 | \$4,375 | \$44,748 | \$0 | \$0 | \$9,825 |
| County Conservation | \$8,014 | \$4,235 | \$0 | \$0 | \$4,558 | \$3,361 |
| Arbor Day³ | \$16,336 | \$0 | \$5,202 | \$15,344 | \$39,252 | \$15,227 |
| FEMA | \$0 | \$96,766 | \$0 | \$0 | \$0 | \$19,353 |
| GNA | \$9,393 | \$41,516 | \$43,284 | \$32,014 | \$20,280 | \$29,297 |
| Stewardship | \$0 | \$0 | \$2,342 | \$0 | \$0 | \$468 |
| WI Coastal Management | \$186,841 | \$448 | \$93,404 | \$613 | \$0 | \$56,261 |
| Total | \$293,429 | \$239,938 | \$322,600 | \$234,023 | \$164,292 | \$250,856 |

¹ Where awarded funds were received per calendar year.

² Starting in 2019, includes funds received Wisconsin Habitat Partnership Fund Grant. Starting in 2021, includes funds from the Turkey Stamp grant.

² In 2020, includes \$44,978 from the WI Habitat Partnership grant.

² In 2021, includes \$66,312 from the WI Habitat Partnership grant; \$25,847 from Turkey Stamp; and a \$2,000 donation from the Sharp-tailed Grouse Society.

³ Also includes similar awards/donations.

In 2022, nearly \$165,000 was received from the major grants and aids. This was a decrease of roughly 30% when compared to 2021, primarily due to a significant level of wildlife funding on one-time projects.

The Sustainable Forestry grant and County Conservation Aids are generally highly variable. Both are awarded based on the state fiscal year and revenues are received after projects are completed. In some cases, a project can be completed in one year, with actual re-imburement received the following year.

The Sustainable Forestry grant is also competitive with other county forest programs, and, therefore, not guaranteed. The Arbor Day grant is privately funded and also competitive. Funding from this grant covers trees purchased as part of the planting program. Other grants and/or aids are received within a calendar year, but may not be regularly recurring and, as such, are not included in the table listed above.

The Federal Emergency Management Agency (FEMA) is very sporadic and contingent upon a disaster declaration. Land acquisition grants from Knowles-Nelson Stewardship and WI Coastal Management are also awarded irregularly and on a project by project basis. But, when awarded, both grants have the potential to be substantial. While the Stewardship grant has primarily been used to purchase land that will be enrolled in CFL, the WI Coastal grant has primarily been used to assist in the purchase of unique properties with high conservation value. These properties have not been enrolled in CFL, but are still managed by the Department (primarily with a recreational emphasis i.e. Siskiwit Falls and Fire Hill).

Additionally, many grants are awarded in a specific calendar year, but full or partial re-imbusement is not realized until the project is complete. Also, most grants are awarded by state or federal agencies and are based on the fiscal year, with a contract length of typically two years. Most can also be extended, without penalty, for another full year. A good example is the Wisconsin Habitat Partnership Fund grant (Pittman-Robertson funds) that was awarded in 2018. Roughly \$51,000 in grant funds, for work to be completed in the Barnes Barrens, was awarded to the Department. Work occurred (expenses incurred) in 2018, 2019 and 2020 and the reimbursement funds were received in 2020.

GOOD NEIGHBOR AUTHORITY (GNA)

In spring 2016, Bayfield County entered into a GNA Memorandum of Understanding (MOU) with the DNR. As part of the MOU, the county agreed to become a contractor of the state, with the ultimate goal of assisting in the establishment of timber sales on federal land.

Program contracts are established with the state on an annual basis and subject to a mutually agreed upon scope of work. All work performed by the county as part of the GNA MOU is accomplished outside of normal business hours. As a result, the focus on, and completion of, core Department goals and objectives are not impacted by the MOU.

The scope of work defines the level of involvement the Department is willing to provide, outlines general goals and expected accomplishments and establishes an estimated budget. All salary, fringe, supplies, services and overhead costs, contributed by the county as per the GNA program contract, are reimbursed by the state.

Table 36 summarizes GNA activity since 2016.

Table 36: Summary of GNA Activities (2016-2022)

| Calendar Year | Fiscal Year | No. of Stands ¹ | Total Acres ¹ | Total Hours ² | Expenses | Revenues ³ |
|-------------------|-------------|----------------------------|--------------------------|--------------------------|--------------|-----------------------|
| 2016 | 2017 | 15 | 381 | 326 | \$21,033.35 | \$0.00 |
| 2017 | 2018 | 20 | 675 | 358 | \$23,960.56 | \$39,627.93 |
| 2018 | 2019 | 17 | 889 | 365 | \$24,164.40 | \$9,393.10 |
| 2019 ⁴ | 2020 | 52 | 1,685 | 490 | \$38,548.18 | \$41,515.62 |
| 2020 | 2021 | 17 | 520 | 410 | \$30,267.16 | \$43,284.28 |
| 2021 | 2022 | 16 | 478 | 251 | \$18,538.86 | \$32,014.38 |
| 2022 | 2023 | 7 | 357 | 250 | \$15,934.81 | \$20,279.85 |
| Total | | 144 | 4,985 | 2,450 | \$172,447.32 | \$165,835.31 |

¹ Total work assigned per calendar year per GNA contract.

² Includes hours associated with timber sale establishment and administration.

³ A portion of the revenues are generally received the year after work has been completed.

⁴ Of the total stands/acres, 17 stands and 634 acres were prescription writing only.

The scope of work is also subject to annual revisions and Department involvement is highly dependent on opportunities located within the Washburn Ranger District of the Chequamegon-Nicolet National Forest. The scope of work generally involves, but is not limited to: initial stand assessments; prescription development and writing; timber sale boundary establishment; timber marking and cruising; timber sale write-up; and timber sale administration.

In 2022, 7 stands covering 357 acres were included as part of the GNA workload, which still continues to be entirely focused on stands of red pine. In 2022, the workload was skewed more heavily towards second and third thinnings, which require more time to establish.

Since 2016, a total of nearly 2,500 hours have been attributed towards the GNA program. Again, these hours are classified as overtime and do not interfere with normal Departmental operations.

Work on the CY2022 program contract will continue in 2023. In addition, the eight GNA program contract with the state will be developed in early 2023, likely for the management of red pine stands on the Washburn Ranger District. Starting in 2019, timber sale administration has become a significant GNA workload. The administration of timber sale contracts increased in 2020 and is expected to be a significant workload into the foreseeable future.

OTHER RECREATION ACCOMPLISHMENTS (State Funded Motorized Trails)

The management of county recreational trails was assigned to the Forestry and Parks Department in July 2013. Primarily, this involves the management/oversight of all state funded motorized trails located on county and private lands, but also includes groomed snowmobile trails on federal and state lands. To help accomplish this task, Bayfield County maintains agreements with the Bayfield County Snowmobile Alliance (which is an assemblage of local snowmobile clubs), local ATV clubs, the US Forest Service and the DNR.

Table 37 lists the total miles per motorized trails type as per 2022, managed by the Department, as well as the amount of state maintenance aids received.

Table 37: Mileage and Funding For Trails Managed by Bayfield County

| Trail Type | Miles | Rate/Mile | Total |
|------------|--------|-----------|-----------|
| Snowmobile | 454.41 | \$300 | \$136,323 |
| ATV Summer | 86.75 | \$600 | \$52,050 |
| ATV Winter | 177.13 | \$200 | \$35,426 |
| UTV Summer | 86.75 | \$200 | \$17,350 |
| Total | 805.04 | | \$241,149 |

The State of Wisconsin provides annual aids for the maintenance of existing motorized trails and also offers some additional funding opportunities for individual trail rehabilitation and new trail development projects.

Below are some of the more noteworthy accomplishments on the state funded motorized trails systems in 2022:

- ✓ Were awarded a state grant in 2018 to construct a covered shelter on Trail 3 (Flag Road), near the concrete vault bathroom that was installed in 2017 (also with 100% funding from a state grant). The grant will cover 100% of the costs. Some preliminary work on the design of the shelter began in 2019. Construction of the shelter was completed in 2020. The local clubs coordinated a work day to paint/stain the shelter in 2021. Routine maintenance of the area continued throughout 2022.
- ✓ Storm damage clean-up caused by early season heavy snow and wind created issues across the county and impacted nearly all snowmobile trail networks. Downed trees, bent over brush, heavy amounts of limbs and other debris needed to be removed from the trails. This caused nearly \$40,000 in additional start-up costs, primarily in labor as clubs scrambled to clear trails prior to opening.
- ✓ Re-grade of Trail 13 near the intersection with Trail 19.
- ✓ Re-grade and repair Trail 19 near the Pub and Grub.
- ✓ Re-route of Trail 13 near the Sandor property.
- ✓ Re-route of Trail 31 between Valley Rd and Highway 13.
- ✓ Fix washout and re-grade on Trail 3 near Flag River bridge.
- ✓ Continued to work on the temporary re-route of portions of Trail 31 South to avoid stretches that have become very wet and difficult to freeze down. If the re-route becomes permanent, additional permits will need to be obtained as there would be new stream and wetland crossings. In addition, the 40' bridge currently over the Ounce River would need to be removed and stored for future use. The goal is to make this route permanent.
- ✓ Beaver control near various bridges has become an annual activity. A few nuisance beaver were removed and dams were addressed, in a response to rising water threatening the integrity of the bridge (and use of the trail). The primary areas where beaver control measures were required were on Trails 1, 17 and 31.
- ✓ Multiple bridge re-sets on snowmobile Trails 1 and 31. Primarily as a result of beaver activity.

- ✓ Numerous re-routes of the snowmobile trail system as a result of closure on private lands. When re-routes are required, the Department works closely with the Alliance to locate suitable re-routes and collaborate with the landowners. This will continue to be a problem in the future.
- ✓ Placement of gravel on numerous sections of ATV trail. Sections are treated as needed and as reported by the clubs.
- ✓ Continue to collaborate with the Forest Service on establishing a new access road near FR 447 (which was recently closed at the private property line). The closure of FR447 resulted in the temporary closure of Trail 40, also known as the Wally Polk Memorial Trail. This trail will remain closed until a permanent re-route can be established.

When compared to previous years, aside from the significant level of storm damage that occurred early in the snowmobile season, 2022 was a relatively quiet year in terms of trail related issues. Bayfield County works with local clubs (both ATV and snowmobile) and the Snowmobile Alliances to ensure that all trails are in a safe and enjoyable riding condition. All routine or minor maintenance activities are typically accomplished by the clubs, while most major rehabilitation projects are administered by the Department.

During any given year, routine maintenance can include the posting/maintenance of signs, brushing, removal of debris, mowing, grooming, minor washout or rutting repair, grading, placement of gravel, etc.

Major rehabilitation can include significant culvert washouts, bridge repair, significant damage occurring as a result of flooding or other major storm event, etc. Addressing concerns or questions from private landowners (generally regarding trails approved for use on their property) is also a significant part of managing the motorized programs.

In addition to the state funded trails, the Forest provides numerous opportunities to recreate with a motorized vehicle. As previously stated, there is a total of nearly 1,300 miles of inventoried roads and trails on the county forest. Of that total, approximately 73% are accessible with an ATV/UTV and 44% accessible with a highway vehicle. The county monitors the condition of roads and trails and performs routine maintenance on a case by case basis.

PARKS & CAMPGROUNDS

In September 2010, the management of all county owned parks and campgrounds were assigned to the Forestry and Parks Department. This includes the management of three campgrounds (Twin Bear Lake, Delta Lake and Big Rock) and one day use park (Atkins Lake).

Most of the major improvements have been focused on the two largest and most popular campgrounds, Twin Bear and Delta Lake. Below is a summary of all major accomplishments, at Twin Bear and Delta Lake, since the transition.

1. Twin Bear Campground
 - a. Complete electrical rebuild and upgrade throughout the entire campground.
 - b. Repair of all major outbuildings and store.

- c. New seasonal mooring dock (2017).
 - d. New transient mooring dock, with steps (2017).
 - e. Construction of new overflow parking area (2017).
 - f. Construction of new fenced in storage area adjacent to garage (2017).
 - g. New pressure tank in the upper well (2018).
 - h. New well pump in the upper well (2019).
 - i. Reconstruction of the beach area.
 - j. New fishing pier near the beach area.
 - k. New ADA access ramp to the beach area.
 - l. Creation of new tent camping site.
 - m. Re-grade of the parking area to control runoff and improve drainage.
 - n. New gas hot water heaters, for each shower, in the shower building.
 - o. Installed high-speed wireless internet service throughout the entire campground.
 - p. Installed new playground equipment near the beach area.
 - q. Re-established and re-surfaced the walking path near Puig's Point.
 - r. Improved an old dock and added a new access point to the lake.
 - s. Changed out all locks to the same keyset.
 - t. Trimming of hazard branches and removal of hazard trees (a little nearly every year).
 - u. Replacement of picnic tables (ongoing – a little every year).
 - v. Numerous other minor improvements throughout the campground.
 - w. Erosion repair after two significant storms (2020).
 - x. Removed storm damaged slide from the play area (2020).
 - y. Remove tree from and repair the roof on the shower building (2020).
 - i. Repair included a new metal roof.
 - z. Powered vents added to the shower building (2020).
 - aa. Temporarily installed security cameras in response to a theft of property occurrence (2020).
 - bb. A new fishing dock was installed at Puig's Point in 2021.
 - cc. New entrance signs were order in 2021 and will be installed in 2022.
 - dd. Cabin re-stained (2022).
 - ee. Cabin porch and entry ramp repaired (2022).
2. Delta Lake Campground
- a. Complete camping pad re-grade on nearly all campsites.
 - b. New playground equipment near beach area.
 - c. Removed old access boardwalk near the playground and replaced with graveled path (2017/2018).
 - d. Minor repairs to the beach area (2017 and 2018).
 - e. New fishing pier.
 - f. Repair of all major outbuildings.
 - g. New electric added to last four remaining powerless campsites.
 - h. A small timber sale was established to remove all dead and dying hazard trees. Mostly over mature white birch and aspen.
 - i. Installed high-speed wireless interest service throughout the entire campground.
 - j. Added another mooring dock/fishing pier and small picnic area.

- k. Installed another section on additional mooring dock.
 - l. Replaced hot water heater in the shower building.
 - m. Changed out all locks to the same keyset.
 - n. Minor maintenance on the wooden access ramp.
 - o. Re-located the fee tube due to previous theft related issues.
 - p. Replacement of picnic tables (ongoing - a little every year).
 - q. Numerous other minor improvements throughout the campground.
 - r. Erosion repair after two significant rainstorms (2020).
 - s. New outhouse (2021).
3. Atkins Lake Park (day use)
- a. New boat launch dock (2017).
 - b. A new primary park sign was installed in 2019.
 - c. Old fee tube was removed in 2020.
 - d. Old kiosk was removed in 2021.
4. Big Rock Campground
- a. Removed large dead white pine near river (2018)
 - b. Removed hazard trees and branches/limbs throughout entire campground (2018).
 - c. Regraded and surfaced main parking area (2018).
 - d. Resurfaced a few camping pads (2018).
 - e. Replacement of roughly one quarter of the picnic tables (2018).
 - f. A new primary park sign was installed in 2019.
 - g. New concrete slab around the hand pump in 2020 (6.5'x 6.5'x 3.5").
 - h. New kiosk near the fee tube (2020).

In addition to the physical improvements to the parks and campsites, many logistical improvements have also been made. At both Twin Bear and Delta Lake, seasonal sites have been re-structured in a way to better capture the value potential in each campground. The reservation system for each was also adjusted to give all interested an equal chance at reserving a site. Also in 2021, an option to pay with a credit card was established. This feature was made available at Twin Bear and Delta Lake starting with the 2022 season and will continue through 2023.

Table 38 summarizes the total amount of occupancy at each campground from 2013 through 2022. The seasonal category represents the total number of sites that were rented for an entire camping season (generally the first weekend in May through October 31), while the day use category represents the total number of days non-seasonal campsites were rented within each campground over the entire camping season. Total revenues received are also included (total revenues include seasonal sites, day use sites, boat launching, boat mooring, canoe rentals and other miscellaneous charges).

Table 38: Campground Rates of Occupancy and Total Revenues (Seasonal and Transient)¹

| Year | Twin Bear | | | Delta Lake | | | Big Rock | | | Total | | |
|-------------|-----------|-----------|----------|------------|-----------|----------|----------|-----------|----------|----------|-----------|-----------|
| | Seasonal | Transient | Revenue | Seasonal | Transient | Revenue | Seasonal | Transient | Revenue | Seasonal | Transient | Revenue |
| 2013 | 26 | 519 | \$52,018 | 10 | 387 | \$19,950 | 0 | 286 | \$3,524 | 36 | 1,192 | \$75,491 |
| 2014 | 28 | 539 | \$53,822 | 10 | 388 | \$19,303 | 0 | 303 | \$3,733 | 38 | 1,230 | \$76,858 |
| 2015 | 17 | 1,034 | \$56,835 | 10 | 251 | \$20,176 | 0 | 405 | \$5,118 | 27 | 1,690 | \$82,129 |
| 2016 | 18 | 876 | \$57,401 | 12 | 298 | \$25,304 | 0 | 491 | \$6,209 | 30 | 1,665 | \$88,914 |
| 2017 | 19 | 1,132 | \$64,617 | 13 | 422 | \$31,705 | 0 | 625 | \$7,689 | 32 | 2,179 | \$104,011 |
| 2018 | 19 | 1,010 | \$64,197 | 15 | 442 | \$34,639 | 0 | 581 | \$7,246 | 34 | 2,033 | \$106,082 |
| 2019 | 19 | 1,058 | \$68,960 | 15 | 503 | \$39,122 | 0 | 513 | \$6,617 | 34 | 2,074 | \$114,700 |
| 2020 | 35 | 0 | \$60,581 | 27 | 0 | \$41,145 | 0 | 914 | \$11,263 | 62 | 914 | \$112,988 |
| 2021 | 37 | 0 | \$69,598 | 31 | 0 | \$51,941 | 0 | 920 | \$13,437 | 68 | 920 | \$134,976 |
| 2022 | 23 | 1,183 | \$83,488 | 18 | 552 | \$47,153 | 0 | 954 | \$13,893 | 41 | 2,689 | \$144,535 |
| Average | 24 | 735 | \$63,152 | 16 | 324 | \$33,044 | 0 | 599 | \$7,873 | 40 | 1,659 | \$104,068 |
| Avg. (3 yr) | 32 | 394 | \$71,222 | 25 | 184 | \$46,746 | 0 | 929 | \$12,864 | 57 | 1,508 | \$130,833 |
| Avg. (5 yr) | 27 | 650 | \$69,365 | 21 | 299 | \$42,800 | 0 | 776 | \$10,491 | 48 | 1,726 | \$122,656 |

¹ Seasonal represents the total number of campsites rented for an entire season; Transient is a summary of the total number of days non-seasonal campsites were rented at each campground.

Covid-19 had a significant influence on the management of all campgrounds in 2020 and 2021. As a response to concerns surrounding Covid-19, the Department made a significant temporary change to the way Twin Bear and Delta Lake was managed in both 2020 and 2021. Campsites at both properties were only available for rent by the season. Transient camping was not permitted at Twin Bear or Delta Lake in 2020 or 2021. Also, the opening of each campground was slightly delayed to start the 2020 season to develop Covid-19 management strategies.

The number of seasonal campsites available to rent at Twin Bear and Delta Lake was increased to achieve an occupancy rate of around 80 to 85%. In 2020, a total of 35 seasonal campsites were rented at Twin Bear and 27 at Delta Lake. In 2021, that number was increased slightly, to 37 and 31, respectively.

A “normal” camping structure was implemented in 2022 at both Twin Bear and Delta Lake, which included the more traditional mix of transient and seasonal camp sites.

Camping returns established another record in 2022. Total camping revenue was nearly \$145,000 in 2022, which was roughly 7% higher than 2021 (which was the previous record). Use at Twin Bear was at an all-time high, with total returns nearly 20% higher than 2021. The transient use at Twin Bear was also at an all-time high. Similar records of use (for transients) were also established at Delta Lake and Big Rock in 2022.

In addition to camping, boat launch activity (available at both Twin Bear and Delta Lake, for a fee, and Atkins Lake, for free) continue to increase. Day use of the playground equipment (available at Twin Bear and Delta Lake), as well as the beach (again, at Twin Bear and Delta Lake) has also significantly increased. Total use of the parks, in terms of overnight camping and day-time use of the grounds, has increased dramatically over the past few years.

PROFESSIONAL DEVELOPMENT, REPRESENTATION AND PARTICIPATION

Most staff members of the Department are active members, representatives or participants in various professional committees or organizations. Participation can vary from casual interactions to formal representation. Some of the more noteworthy over the past few years include:

1. Member of a Committee that updated the Economics chapter of the WDNR Silvicultural Handbook – Steve Probst.
2. Assisted in the Log-A-Load for Kids program – Steve Probst.
3. Member of the BMP for Water Quality monitoring/compliance team – Steve Probst.
4. Member of a Committee that updated the Jack Pine chapter of the WDNR Silvicultural Handbook – Andrew O’Krueg.
5. Member of the WDNR Tree Marking Guidelines Ad Hoc Team – Jeremiah Neitzel.
6. WCFA representative on the Wisconsin Initiative on Climate Change Impacts, Forestry working group – Jason Holmes.
7. Member of the WDNR Natural Regeneration Ad Hoc Team – Mike Amman.
8. Member of the Captive Cervid Committee – Mike Amman.
9. Forestry stakeholder representative on the Wisconsin County Deer Advisory Council (CDAC) – Mike Amman.
10. Member of the WDNR Sharp-tailed Grouse Advisory Committee – Mike Amman.
11. WCFA Representative on the WDNR Recreation Stakeholders Committee – Jen Bratsch.
12. Core Member of the Bayfield Area Trails (BATs) Committee – Jen Bratsch.
13. Renewed MSHA Certification – John Mesko.
14. Maintained Herbicide Applicators License – Jeremiah Neitzel.
15. Maintained FAA license to operate drones – Mike Amman, Jason Holmes, Jen Bratsch and Steve Probst.
16. Presenter(s) at one stop of the Natural Resources Board tour (in Cable) – Jason Holmes and Mike Amman. Focus of the discussion was on an overview of the Bayfield County Forest, summary of recreation in Cable, challenges associated with forest management and recreation, deer and continuous forest inventory.
17. Presenter at the WI SAF Annual Conference in Wausau – Jason Holmes. The focus of the presentation was regeneration monitoring and deer browse issues.
18. Presenter at a meeting of the Northern Area GIS User Groups – Jason Holmes.
19. Guest Presenter at Northland College – Jason Holmes. Discussion of forestry and the county forest system during a Forestry class.
20. Presenter at a Wisconsin Woodland Owners Association meeting in Hayward – Jason Holmes. Adapting forest to climate change.
21. Presenter at a Northern Forest Birds Workshop in Ashland – Andrew O’Krueg. Overview of the Barnes Barrens Management Area.
22. Presenter at MN SAF Conference – Andrew O’Krueg. Presentation of the Barnes Barrens Management Area.
23. Presenter at the Wisconsin Sharp-tailed Grouse Society Annual Meeting in Red Cliff – Andrew O’Krueg. Summary of the Barnes Barrens Management Area.
24. Presenter at the Wisconsin Wildlife Society conference. Ruffed-grouse research and policy. Mike Amman. (in 2020).
25. Forestry Representative on the DNR Sharp-Tailed Grouse Advisory Committee – Mike Amman (2022).

26. Presenter at WI Chapter of the Wildlife Society Meeting – Presentation on Barrens Management and Sharp-Tailed Grouse – Mike Amman (2022).
27. Presenter at WI Sharp-Tailed Grouse Society Meeting – Mike Amman (2022).
28. Presenter at Bayfield County Forest Barrens Field Tour – Andrew O’Krueg and Mike Amman (2022).
29. Demonstration of Oak Wilt Treatments with Rec Groups and Industrial Landowners – Jeremiah Neitzel.
30. Wisconsin Academy Focus Group Participant – Jason Holmes (2022).
31. Forest Certification, Carbon and Climate Change – Michigan State Online Course – Caleb Brown (2022).
32. Demonstration of Tree Planting at Washburn Elementary School – Andrew O’Krueg.
33. WCFA/Northern Institute of Applied Climate Science (NIACS) Climate Adaptation Workshop – All field staff (2022).
34. Presenter(s) during the full dual forest recertification audit – the entire Department staff.
35. Hosted professional tours of various forest management activities on the county forest, including, but not limited to, numerous visits to the two deer exclusions fences; the Barnes Barrens Management Area; and red oak regeneration site visits.
36. As part of professional development, all staff members attend various meetings, conferences and technical training sessions throughout the year, including those arranged and/or hosted by the WCFA, SAF, WDNR and other similar organizations.
37. WCFA/WisFIRS Pesticide Training – Tester – Jeremiah Neitzel.
38. Innovation Award. In 2020, the Department was the recipient of the Wisconsin Society of American Foresters (SAF) Innovation in Forestry Award. SAF is the national, scientific and educational organization representing the forestry profession in the United States. The Innovation award is presented annually to a project, team, or an individual to recognize excellence in silvicultural innovation, transfer of knowledge, and/or outreach for the purpose of furthering sustainable forest management in Wisconsin. Mike Amman and Jason Holmes accepted the award during the annual Wisconsin SAF meeting (which was held virtually in 2020).
39. Forest Stewardship Guild Meeting Presentation (2021) – Andrew O’Krueg. Presentation about barrens development and management.
40. University of Minnesota – Sustainable Forests Education Cooperative Presentation (2021) – Andrew O’Krueg. Presentation on pine and barrens management.

MEET THE STAFF

The information listed above describes the general Departmental accomplishments for CY 2022. Below is a brief background history of Department and DNR staff employed to accomplish those goals (that were part of the Department in CY 2022).

Administrator: Jason Bodine.

- a. Experience: Forester with Bayfield County from 2000 to 2009. Administrator from 2009 to present.
- b. Highest Level of Education: Master of Science in Forestry from Michigan Technological University.
- c. Primary Role: administers and manages all aspects of the forestry, parks and recreation programs. Directs day to day operations and all planning efforts. Supervises all employees

working within the Department.

Assistant Administrator: Steve Probst.

- a. Experience: Forester with Bayfield County from 1999 to 2000. Assistant Administrator from 2000 to present.
- b. Highest Level of Education: Bachelor of Science in Forest Management from UW Stevens Point.
- c. Primary Role: assist the administrator in all facets of the forest management program. Provides lead field role in all aspects of timber sale administration.

Forester: Mike Amman.

- a. Experience: Forester with Bayfield County from 2003 to present.
- b. Highest Level of Education: Bachelor of Science in Natural Resources from UW Madison.
- c. Primary Role(s): timber sale establishment, forest reconnaissance, reforestation and regeneration monitoring and database management (GIS and WisFIRS). Assist in other aspects of the forest management program.

Forester: Andrew O'Krueg.

- a. Experience: Forester with Bayfield County from 2010 to present.
- b. Highest Level of Education: Bachelor of Science in Forest Management from UW Stevens Point.
- c. Primary Roles(s): timber sale establishment, forest reconnaissance, reforestation and regeneration monitoring and database management (GIS and WisFIRS). Assist in other aspects of the forest management program.

Forester: Jeremiah Neitzel.

- a. Experience: Forester with Bayfield County from 2011 to present.
- b. Highest Level of Education: Bachelor of Science in Forest Management from UW Stevens Point.
- c. Primary Roles(s): timber sale establishment, forest reconnaissance, reforestation and regeneration monitoring and database management (GIS and WisFIRS). Assist in other aspects of the forest management program.

Forester: Caleb Brown.

- a. Experience: Forester with Bayfield County since 2018.
- b. Highest Level of Education: Master of Science in Forest Biology from Purdue University.
- c. Primary Role(s): timber sale establishment, forest reconnaissance, reforestation and regeneration monitoring and database management (GIS and WisFIRS). Assist in other aspects of the forest management program.

Inventory and Analysis Forester: Jason Holmes.

- a. Experience: Forester with Bayfield County from 2012 to 2018; Inventory and Analysis Forester from 2018 to present.
- b. Highest Level of Education: Master of Science in Forestry from Michigan Technological University.
- c. Primary Roles(s): develop and manage the CFI and FRM programs, including data analysis and reporting; provide a lead role in the management of the access management program; play a lead role in the management of various GIS databases; assist in other field forestry related tasks including timber sale establishment, inventory, and reforestation.

Recreation Specialist: Jenifer Bratsch.

- a. Experience: Recreation Forester with Bayfield County from 2016 to present.
- b. Highest Level of Education: Master of Science in Physical Geography from the University of Calgary.

- c. Primary Roles(s): assist in the management of state funded ATV and snowmobile programs, all recreation related activities on county forest lands, including all designated non-motorized trails and yurts, and county owned campgrounds and day use parks.

Recreation Specialist: Lindley Mattson.

- a. Experience: Office manager with the Forestry and Parks Department from February 2019-April 2022; Recreation Specialist since April 2022.
- b. Highest Level of Education: Bachelor of Science in Business Management from UW River Falls.
- c. Primary Roles(s): assist in the management of state funded ATV and snowmobile programs, all recreation related activities on county forest lands, including all designated non-motorized trails and yurts, and county owned campgrounds and day use parks.

Forest Technician: John Mesko.

- a. Experience: Forest Technician with Bayfield County from 2001 to present.
- b. Primary Roles(s): heavy equipment operation, road and trail maintenance, repair and construction, parks maintenance, assist in the timber sale program, assist in the reforestation program.

Office Manager: Cassie Taylor.

- d. Experience: Office manager with the Forestry and Parks Department since April 2022.
- e. Primary Roles(s): maintains accounts receivable and payable, prepares vouchers for all expenditures, manages all accounts and paperwork associated with the timber sale program, manages and prepares all financial records, statements and reports, provides customer service.

WDNR – County Forest Liaison Forester: Joseph LeBouton.

- a. Experience: WDNR - County Forest Liaison Forester from 2011 to present.
- b. Highest Level of Education: PhD candidate in the Department of Forestry at Michigan State University for five years where he studied links between forest landscape composition, white-tailed deer densities and northern hardwood forests.
- c. Primary Roles(s): coordinating the DNR's contribution to Bayfield County Forest management activities. The DNR provides the county with enough forest management assistance annually to set up 25% of the sustainable harvest, perform roughly 50% of the required forest reconnaissance updates, as well as contribute to road maintenance, forest improvement activities, prescribed fire, and wildlife habitat improvement projects.