

**TIMBER HARVEST AND
INVENTORY REPORT-DNR STATE LANDS
For Calendar Years 2015-16**



**As required by s. 28.025(3)(a), Wis. Stats.
Submitted to the Council on Forestry, February 2017**

BACKGROUND

Wisconsin Act 166 (2005) requires the Department of Natural Resources (DNR) to report biennially to the Council on Forestry the total timber harvest on state lands. Further, it requires DNR to establish an annual allowable timber harvest for these same properties or groups of properties. Further, it requires DNR to maintain a current inventory (recon) of forest resources on state forested lands.

SUMMARY

The focus of DNR Forestry efforts in CY 2015 and CY 2016 was threefold:

1. to continue achieving our long term harvest goals, and
2. to improve accuracy of our harvest goals by continuing to update forest reconnaissance while updating the oldest (>20 years old) forest reconnaissance (recon) data
3. to make progress on the remaining backlog of scheduled timber sales on properties where backlogs exist.

1. Achieve Long Term Harvest Goals

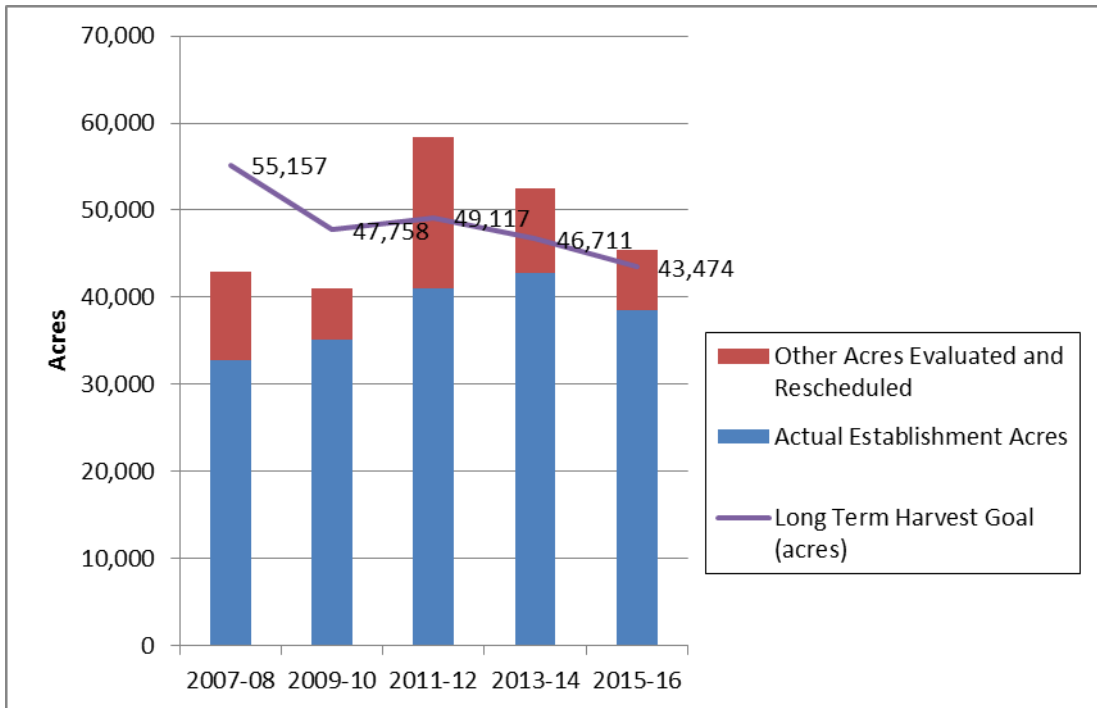
Annual Allowable Timber Harvest goals (15 year average) scheduled 43,474 acres for harvesting over 2015-16. 38,400 acres were silviculturally-ready and were established for commercial sale. Recon information was updated on the remainder with harvests rescheduled (7,030 acres deferred for later harvests). The State achieved 105% of the Long Term Harvest Goals (acres set-up for sales and rescheduled). The projected income from these timber sales is \$12.7 million annually. This is based on the average value per cut acre on all State timber sales for sold sales under contract for 2015-2016.

With Act 166 in 2005, the State has demonstrated improvement in both timber sale acres established and percentage of our long term harvest goals, most significantly in the years since 2011.

STATE LAND HARVEST GOALS

	2005-06	2007-08	2009-10	2011-12	2013-14	2015-16
Long Term Harvest Goal (acres)	54,250	55,157	47,758	49,117	46,711	43,474
Actual Establishment Acres	25,818	32,771	35,105	40,949	42,733	38,446
Other Acres Evaluated and Rescheduled	11,716	10,150	5,878	17,393	9,700	7,030
Total Acres Evaluated For Sale	37,534	42,921	40,983	58,342	52,433	45,476
Percentage of Long Term Harvest Goal	69%	78%	86%	119%	112%	105%

TIMBER HARVEST GOALS and EVALUATIONS



In comparing timber harvest evaluation activity from the 6 year period of 2005-2010, there were 121,440 acres evaluated for timber harvest. The following 6 year period (2011-2016), 156,250 acres were evaluated. This is an increase of 29%, resulting in increased acres harvested during the last 6 year period, as compared to the first 6 years where there were clear shortfalls of timber sales being offered to meet long term harvest goals.

Status

The 2015-16 figures indicate timber harvest activity more closely equals the long term harvest goals (15 year average). With updated recon information and fewer back-log timber sales, it is expected that the acres being evaluated and set up for sale will continue to decrease slightly then level out over time. We are moving closer to a regulated state in the forests which will provide better estimates for acres and volume of raw materials being offered on an annual basis. Long term harvest goals were surpassed by 5% in 2015-16 as compared to an excess of 12% in 2013-14 and 19% in 2011-12. There were significant shortfalls as reported in the three harvest reports prior to that (2007-2010). The increased harvest activity over the past three reporting periods is due to an emphasis on reaching the long term allowable harvest levels and also a focused evaluation of the stands that had backlogged timber harvests. Addressing the backlogged stands resulted in both additional timber harvest establishment and additional temporary deferral of acreage on stands that were not yet ready for harvest.

Planning efforts over the past several years and improved forest reconnaissance has refined the calculated allowable harvest levels. These improvements helped foresters and property managers better define which forest stands are suitable for harvest given a property's management goals. Harvest establishment for an individual property or

group of properties can vary significantly year to year for a variety of reasons. Some explanations on variations specific to individual or groups of properties can be found in the comments section in the attached spreadsheet.

In general, the reasons for exceeding the allowable harvest target on individual properties include:

- Expedited establishment of timber harvests on stands that had been scheduled for harvest in previous years but that had not yet been established due to various constraints.
- Properties may have sporadically scheduled harvest activities based on the existing forest conditions, which results in actual harvest establishment that may exceed or fall short of long term harvest goals in an individual year.
- Weather and forest health conditions can damage forest stands and resulting salvage harvests may exceed long term harvest goals. Conversely, in years following salvage harvests which exceed goals, the harvest establishment on a property is typically lower than the long term goals.



In general, the reasons for not achieving the allowable harvest target on individual properties include:

- Properties may have sporadically scheduled harvest activities based on the existing forest conditions, which results in actual harvest establishment that may exceed or fall short of long term harvest goals in an individual year.
- The challenge of transferring accurate social constraints from master planning into the individual stand data. Some stands are being shown as ready to evaluate for harvest in the schedule when the property master plan does not allow for it.
- Timber harvest postponement resulting from pending master plan direction and coordination with Wildlife, Fisheries, Parks, and Natural Heritage Conservation programs.
- The challenge of establishing and implementing timber harvests on intensively managed Park properties so harvests integrate with social considerations such as camping season, trail use, and other property user activities.
- Challenges in both establishing timber harvest on forested wetland types such as bottomland hardwood, swamp hardwood, and swamp conifers and in getting them harvested due to wet ground and poor access.
- Workload – Other high priority initiatives such as mandatory MFL work, fire suppression, and commitments to our County Forest partners as well as vacancies across the state, all of which may limit available staff time to conduct activities on specific state lands.

Process Improvement:

- Continued completion of master plans on DNR properties will further refine the property and stand objectives and will improve the long term harvest goal estimates. For properties without master plans and those with outdated master plans, interim forest management plans will be completed prior to timber harvest to assess property forestry objectives and solicit public input.
- Contracting of some state land timber sale work will continue to be utilized where cost effective.
- Continued improvement/development of the recon database (WisFIRS) is expected to streamline timber sale administration and tracking. In addition to DNR lands, the 2.4 million acres of County Forests also house their inventory in WisFIRS and will benefit from the public lands components of this project.

2. Maintaining Updated Forest Reconnaissance (recon) Data

Up-to-date recon allows for more accurate predictions of management needs, including timber harvests. This allows foresters and property managers to more effectively work plan and blend in the social, ecological, and economic factors that all contribute to implementing these practices.

As of January 1, 2017, over 99.9% of the DNR’s state lands have recon data, totaling over 1.58 million acres contained within 887 properties. Over 189,900 acres of inventory were updated and entered into the Wisconsin Forest Inventory and Reporting System (WisFIRS) in 2015-16. The only lands missing data are small parcels not suited for land management activities such as tower sites, boat landings, administrative areas and those that may have just recently been acquired.

Status

Nearly all DNR lands now have updated recon data. There are currently only 25,850 acres (1.6% of total) that still have recon data in excess of 20 years old. Many of these acres are non-timber types such as tag-alder, willow, kegs/bogs that do not require more frequent updated recon.

Progress 2015-16

- Previous reports have shown the efforts of updating recon and the department is now essentially in a maintenance mode for periodic updating older recon, or evaluating stands that are scheduled for harvests.
 - State Forests have essentially eliminated recon that is over 20 years old (656 acres remaining – 0.13%)

View	Map	Comp. Summary	Property	Property Name	Compartment	Planned Treatments
			220	STATE OWNED ISLANDS-ASHLAND	1	[PT]
			320	STATE OWNED ISLANDS-BARRON	400	[PT]
			320	STATE OWNED ISLANDS-BARRON	401	[PT]
			420	STATE OWNED ISLANDS-BAYFIELD	1	[PT]
			720	STATE OWNED ISLANDS-BURNETT	1	[PT]
			1620	STATE OWNED ISLANDS-DOUGLAS	1	[PT]
			1674	BRULE RIVER STATE FOREST	1	[PT]
			1674	BRULE RIVER STATE FOREST	5	[PT]
			1674	BRULE RIVER STATE FOREST	6	[PT]
			1674	BRULE RIVER STATE FOREST	7	[PT]
			1674	BRULE RIVER STATE FOREST	8	[PT]
			1674	BRULE RIVER STATE FOREST	9	[PT]
			1674	BRULE RIVER STATE FOREST	10	[PT]

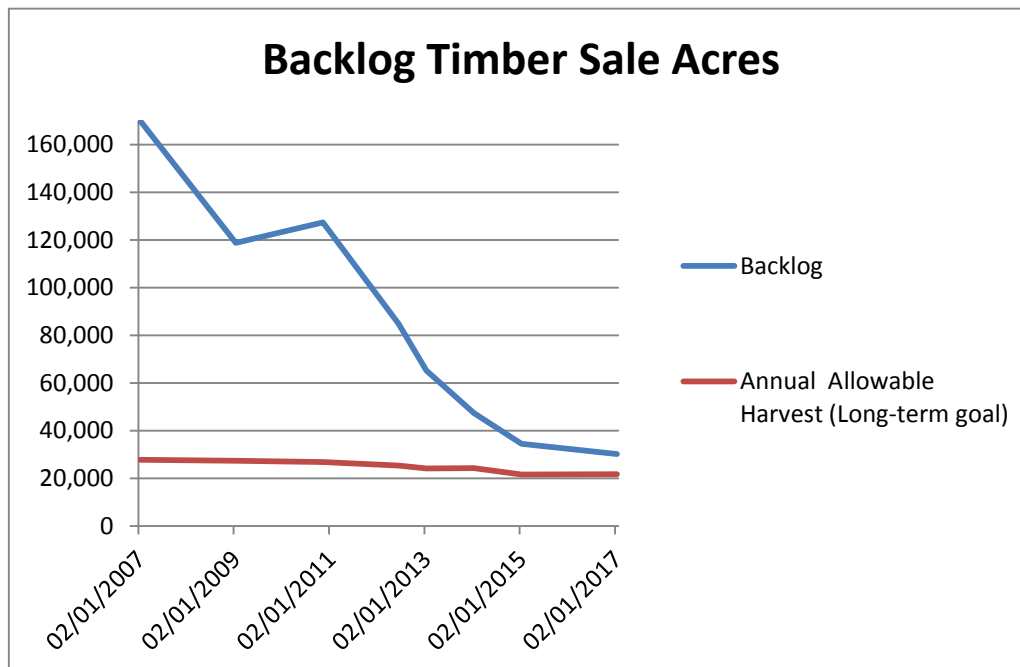
- State Lands (excluding State Forests) have nearly eliminated recon that is over 20 years old (24,700 acres remaining – 2.38%). During the next 2 years DNR will focus on reducing the remaining recon over 20 years old on all properties.

3. Reduce Backlogged Timber Sales

In 2015-16 properties statewide were successful in reducing the amount of backlogged timber sales. Collectively, DNR lands achieved 105% of the long term harvest goal statewide, which points to the successes of many properties at reducing the amount of backlogged harvests. There has been continued steady progress on all DNR lands to reduce the amount of backlogged timber harvests scheduled.

Total Timber Sale Backlog - Statewide			
Date	Annual Goal	Long Term Goal*	Backlog
02/01/2007		27,700	170,000
02/01/2009		27,300	118,800
12/01/2010	154,136	26,750	127,386
07/01/2012	110,060	25,293	84,767
02/04/2013	89,300	24,070	65,230
02/18/2014	71,478	24,188	47,290
02/19/2015	55,963	21,530	34,433
02/13/2017	47,731	21,725	26,006

*Long Term Goals for 2007 & 2009 reconstructed/estimated.

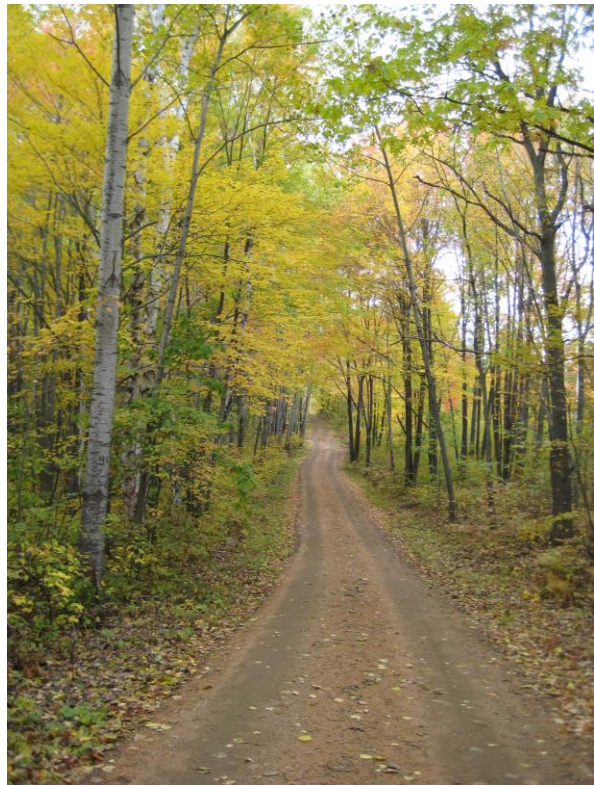


Status

Currently, on all DNR lands approximately 26,000 acres remain backlogged for harvest evaluation. This is a 25% reduction from the 34,500 acres that were backlogged in 2015. The backlog on State Forest properties has been reduced to 6,200 acres. This is a 17% reduction from the 7,500 acres that were backlogged in 2015.

While the backlog has been reduced by 8,500 acres since 2015, some work remains. The DNR will continue to reduce the backlog until it reaches and is maintained at an annual operational level, which is considered an amount less than one year's calculated long term allowable harvest (currently approximately 21,700 acres annually).

Collaboration and work with other DNR Division programs will continue in order to better ascertain in what stands timber harvesting is truly feasible and fits with property objectives. Until those determinations have been finalized (through master planning, interim forest management plans, and integrated property planning meetings) the harvest goals on some properties are likely artificially high.



Process Improvement:

The DNR remains committed to making further in-roads into this workload, within the constraints of human and fiscal resources.

Expanded use of annual property meetings involving staff from all Divisions are being held to address management needs in an integrated manner on an on-going basis.

Interim Forest Management Plans are continuing to be developed and implemented on properties that do not yet have completed master plans or have one that is out-of-date to more comprehensively plan for timber management on these properties.

An expedited master planning process has been implemented and it is anticipated that this process will streamline the decision-making so management practices can proceed.

2015-2016 ACCOMPLISHMENT REPORT (attached)

The attached reports provide the information specified in Act 166 for calendar years 2015 and 2016 specifying the total timber harvest for each forested property. Again, it is important to note that harvest scheduling identifies those forest stands to be *examined* for harvest, and does not necessarily equate to how many acres will actually be harvested. For that reason, comparisons to annual allowable harvest include two figures; the actual harvest establishment acres, plus acreage where the timber sale was evaluated and rescheduled (deferred). In the attached reports, the combination of timber sales established and acres of timber sales deferred, is used to determine the progress on the allowable timber harvest goals. DNR's Division of Forestry monitors harvest activity, but typically over a longer fifteen year time frame in order to discount peaks and valleys associated with insect and disease infestations, storm damage, market fluctuations, and staff vacancies.

The larger properties are listed separately and the smaller properties are grouped together as miscellaneous properties under their respective conservation fund account. The conservation fund includes accounts for forestry (FR), fish & wildlife (FW), parks (PR), and natural heritage conservation – natural areas (NA).

The tables also provide the status of the recon information on each property or group of properties. The information focuses on those State DNR properties greater than ten acres in size although some smaller properties have been included in the combined property data. Recon data is absent for some smaller properties where there is no land management potential (e.g. tower sites, ranger stations, boat launches, and administrative areas).

The spreadsheet indicates there is high variability in percentage of allowable harvest achieved on small properties that are not regulated. For example, a small property may have one stand to harvest of 75 acres scheduled over a 15 yr. period (5 acre long term harvest goal). That 75 acre sale would be sold and reported in a given year, reflecting an accomplishment of 1500% of allowable harvest. The other 14 years it would be 0%.

TERMINOLOGY

An understanding of the terminology referenced in Act 166 is necessary to fully comprehend the discussion in the report and the data in the following table. Following is a glossary of terms used in the report:

Area control – In the determination of sustainable timber harvest levels, area control is a system whereby a certain number of acres (as opposed to volume) are identified each year for harvest consideration.

Annual Allowable Timber Harvest – Under area control, this is the number of acres that can be harvested each year, on a sustained basis, without depleting the resource over time. It is calculated based on inventoried forest data (see Recon definition below) collected by foresters in combination with long range planning (e.g. master planning) considerations. A property's ecological, economic, and social constraints are considered in this determination. The forester uses this information to determine a predicted year of harvest for each stand of trees (see

definition below). The combination of these stands, and their associated treatments, represents the number of acres to be evaluated for harvest in a particular year. The annual allowable timber harvest is a long term monitoring figure. Yearly fluctuations are common due to changing conditions created by storms, insect & disease infestations, changing timber markets, fires, or backlogged workload. The long term allowable harvest acreage goal in the WisFIRS database is a more stable value that disperses highs and lows in the annual harvest schedule over the planning period and is used to identify the annual allowable timber harvest goal for each property.

Deferred timber sales – Under area control the number of acres are identified for harvest consideration. This is based on the forester’s predicted year of harvest for individual stands of trees. When the scheduled year arrives, the forester examines each stand to determine if the predicted year of harvest was correct and the stand is ready for harvest. Occasionally, the stand does not develop as anticipated or conditions may have changed so that a harvest is not warranted. In those cases, the harvest date is deferred to a later date. Acres of deferred timber sales contribute to the total harvest establishment effort in an acreage control system.

Harvest establishment – The process in which a forester has identified a stand of trees for harvest, appraised the timber to be removed, identified operational specifications for the harvest, and prepared the paperwork necessary to bid out the sale to prospective logging contractors.



Harvest scheduling – The process for allocating harvests over a forest with emphasis on which treatments to apply and when and where to apply them.

Property acres – This is the fee title acreage of a property as reflected by the deed and property tax lister.

Recon (reconnaissance) – Similar to an inventory, this is a term used to describe the collective attributes of a forest stand. Examples of data collected by the forester includes the species present, age, density, volume, height, diameter, ground cover, soil type, and the number of acres in a stand. The forester uses this information to determine an anticipated year in which a forest management treatment is needed. This information is computerized in a tabular format and linked to computerized or hand drawn maps. The data is available locally but the entire public land recon is maintained in a central database. Storing the recon database in a computerized format provides for the annual and long-term allowable harvest calculation and the associated stand harvest scheduling.

Districts – Refers to the Department of Natural Resources’ Division of Forestry’s four administrative areas of the State.

Stands – A contiguous group of trees sufficiently uniform in species composition, structure, and age-class distribution, and growing on a site of sufficiently uniform quality, to be considered a relatively homogenous and distinguishable unit.

WisFIRS – An acronym for the Wisconsin Forest Inventory and Reporting System which is the database housing the tabular recon, GIS spatial representation of stands, and timber sale information for State lands.

Data extraction notes-

- Forest Reconnaissance data from WisFIRS-Forest Recon Stats Report 114, 2/6/17
- Long Term Harvest Goals data from WisFIRS-Long Term Harvest Goals Report 201, 2/6/17
- Timber Sale Established and Evaluations data from WisFIRS-Harvest Establishment Monitoring Report 303, 2/6/17

ACT 166 CY 2015-16- DNR STATE LANDS INVENTORY & TIMBER HARVEST REPORTING

Forestry District	DNR Property Name	Conservation Fund Account	Property Acres	Recon Acres (Inventory)	% of Property with Recon	2015-16' Long Term Harvest Goal Acres	2015-16' Established Timber Sale Acres	2015-16' Evaluated & Rescheduled Acres	Total Acres Established and Rescheduled	% of Allowable Harvest	# of LRS Properties
NED	PINE-POPPLE WILD RIVERS	FW	11,475	11,481	100%	548	653	70	723	132%	1
NED	NORTHERN HIGHLAND - AMERICAN LEGION STATE FOREST	FR	234,382	236,079	101%	8,606	7,675	273	7,948	92%	2
NED	PESHTIGO RIVER STATE FOREST	FR	11,160	9,058	81%	294	402	112	514	175%	1
NED	GREEN BAY WEST SHORES WILDLIFE AREA	FW	10,097	9,346	93%	157	169	-	169	108%	1
NED	NAVARINO WILDLIFE AREA	FW	15,128	14,530	96%	358	216	70	286	80%	1
NED	WILLOW FLOWAGE	FW	21,230	22,182	104%	891	908	-	908	102%	2
NED	Misc. NED FR	FR	680	534	79%	15	-	-	-	0%	2
NED	Misc. NED FW	FW	84,679	84,556	100%	2,376	1,359	92	1,451	61%	81
NED	Misc. NED NA	NA	18,561	16,530	89%	264	145	8	153	58%	4
NED	Misc. NED PR	PR	27,077	25,879	96%	423	260	83	343	81%	25

NWD	BRULE RIVER STATE FOREST	FR	47,473	47,141	99%	2,190	2,677	143	2,820	129%	1
NWD	FLAMBEAU RIVER STATE FOREST	FR	91,183	93,739	103%	4,111	5,557	313	5,870	143%	1
NWD	GOVERNOR KNOWLES STATE FOREST	FR	21,072	21,010	100%	600	700	261	961	160%	1
NWD	CREX MEADOWS WILDLIFE AREA	FW	29,402	29,412	100%	368	358	-	358	97%	1
NWD	FISH LAKE WILDLIFE AREA	FW	13,443	13,676	102%	136	137	-	137	101%	1
NWD	HAY CREEK-HOFFMAN LAKE WILDLIFE AREA	FW	13,431	13,772	103%	430	226	-	226	53%	1
NWD	KIMBERLY CLARK WILDLIFE AREA	FW	8,847	8,807	100%	195	84	-	84	43%	1
NWD	CHIPPEWA FLOWAGE	FW	7,102	7,426	105%	245	433	-	433	177%	1
NWD	TURTLE FLAMBEAU SCENIC WATERS AREA	FW	35,656	37,827	106%	448	146	-	146	33%	1
NWD	Misc. NWD FR	FR	851	861	101%	7	9	-	9	129%	4
NWD	Misc. NWD FW	FW	95,069	93,320	98%	2,600	1,277	546	1,823	70%	79
NWD	Misc. NWD NA	NA	16,126	18,390	114%	136	256	-	256	188%	2
NWD	Misc. NWD PR	PR	16,740	16,845	101%	308	282	-	282	92%	14

SOD	LOWER WISCONSIN STATE RIVERWAY	FW	45,859	46,405	101%	848	639	117	756	89%	1
SOD	KETTLE MORAIN STATE FOREST	FR	56,088	55,098	98%	2,104	1,384	114	1,498	71%	6
SOD	POINT BEACH STATE FOREST	FR	2,943	3,029	103%	105	173	-	173	165%	1
SOD	Misc. SOD FR	FR	1,032	1,029	100%	16	33	-	33	206%	6
SOD	Misc. SOD FW	FW	238,101	226,645	95%	3,237	3,066	585	3,651	113%	181
SOD	Misc. SOD NA	NA	14,197	17,030	120%	203	105	-	105	52%	12
SOD	Misc. SOD PR	PR	48,416	44,062	91%	1,026	233	950	1,183	115%	48

WCD	BLACK RIVER STATE FOREST	FR	68,676	68,956	100%	2,663	2,186	344	2,530	95%	1
WCD	COULEE EXPERIMENTAL FOREST	FR	2,992	2,959	99%	169	244	-	244	144%	1
WCD	MEAD - MCMILLAN WILDLIFE AREA	FW	38,674	37,647	97%	572	397	2,189	2,586	452%	2
WCD	MEADOW VALLEY WILDLIFE AREA	FW	58,898	55,761	95%	1,505	783	61	844	56%	1
WCD	SANDHILL WILDLIFE AREA	FW	9,625	9,845	102%	256	46	-	46	18%	1
WCD	TIFFANY WILDLIFE AREA	FW	13,321	10,244	77%	553	350	-	350	63%	1
WCD	WOOD COUNTY WILDLIFE AREA	FW	19,282	21,154	110%	331	150	52	202	61%	1
WCD	Misc. WCD FR	FR	418	102	24%	5	-	-	-	0%	3
WCD	Misc. WCD FW	FW	91,272	96,621	106%	2,220	2,088	638	2,726	123%	93
WCD	Misc. WCD NA	NA	18,023	15,246	85%	157	232	-	232	148%	7
WCD	Misc. WCD PR	PR	25,584	25,491	100%	432	198	9	207	48%	19
STATEWIDE TOTALS			1,584,267	1,569,725	99%	42,108	36,236	7,030	43,266	105%	

-PLEASE REFER TO THE BACKGROUND SECTION OF THE REPORT FOR A GLOSSARY OF TERMS-

of LRS Properties- This is the number of separate properties listed in the Land Records Systems (LRS), that make up the Property Name

* Recon acres will not always match acres in ownership due to differences in acreage determination by LRS and WisFIRS

*Data extraction for LRS and corresponding WisFIRS matching, conducted on 3/8/17

* Several thousand acres of DNR owned lands that are small administrative areas (e.g. building sites, towers and admin. facilities) are not included in the Recon inventory database.