MONTANA FISH, WILDLIFE & PARKS

NONGAME WILDLIFE MANAGEMENT BUREAU
ANNUAL REPORT*
2017**

The Montana Fish, Wildlife and Parks Nongame Program strives to meet five fundamental objectives;

1. Conserve, restore, and enhance habitat for nongame wildlife.
2. Maintain nongame species distribution and abundance.
3. Increase internal and external support and appreciation for nongame wildlife.
4. Increase the public's access to nongame wildlife.
5. Minimize the negative impacts of Endangered Species Act listings to landowners, recreationists and user groups.

Common nighthawk. (Photo, Lee Nelson)

*This report does not cover all work to manage or conserve nongame species or the habitat they use across the state rather it is intended to highlight the scope and diversity of work being conducted to meet program objectives.

**This report is intended to cover work that was primarily conducted during calendar year 2017 but does include some work from previous years as appropriate to describe a project or lay the ground work for a summary.

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Program Personnel and Funding

The nongame program is supervised out of Montana Fish, Wildlife and Parks (MFWP) heaquarters by the Wildlife Division Administrator and the Nongame Wildlife Management Bureau Chief. Staff specifically assigned to the Bureau include only the Bureau Chief and statewide Avian Conservation Biologist. In each of the seven MFWP regions is a wildlife biologist responsible for coordinating nongame wildlife work under the Region Wildlife Manager with both program and region priorities in mind. Successful monitoring, management and conservation of nongame species is happening across the Department through the efforts of all staff including Wildlife Division biologists, coordinators, technicians, and interns in addition to staff from other Divisions including Fisheries, Responsive Management Unit, Communiciations, Enforcement, and Parks. Volunteers and staff from other agencies like the Montana Natural Heritage Program also contribute to meeting program objectives. Work completed by biologists in the narrative below describes work completed by nongame specialists, area biologists, and/or the statewide avian conservation coordinator unless otherwise specified.

The program is funded through a combination of federal State Wildlife Grant dollars, Department license sales, Pittman-Robertson dollars, Nongame Tax Checkoff contributions, and monies brought in from outside grant awards or funders such as the Montana Outdoor Legacy Foundation.

<u>2017 Staff</u>

Wildlife Division Administrator	Ken McDonald
Nongame Wildlife Management Bureau Chief	Lauri Hanauska-Brown
Avian Conservation Biologist	Allison Begley
Region 1 Wildlife Biologist/Nongame Specialist	Chris Hammond
Region 2 Wildlife Biologist/Nongame Specialist	Kristi Dubois
Region 3 Wildlife Biologist/Nongame Specialist	Claire Gower
Region 4 Wildlife Biologist/Nongame Specialist	Kristina Smucker
Region 5 Wildlife Biologist/Nongame Specialist	Megan O'Reilly
Region 6 Wildlife Biologist/Nongame Specialist	Heather Harris
Region 7 Wildlife Biologist/Nongame Specialist	Brandi Skone

Special Recognition: Kristi Dubois, a dedicated wildlife biologist for the Department over a span of 40 years retired in December 2017. Kristi's contributions to establishing the nongame program in Montana, mentoring new employees within and outside the program, and sharing her depth of knowledge and passion for the resource is truly irreplaceable.

Technical Services

Technical expertise and advice was provided by MFWP biologists in the areas of solar energy, energy infrastructure development, wind development and habitat conservation projects. In coordination with the Responsive Management Unit (RMU), biologists have commented on or participated in conversations about 13 different wind projects at various stages of development. There has been an increased effort to coordinate these consultations with the US Fish and Wildlife Service to provide consistent feedback on expectations or desires for development in the state. Staff from all regions provide technical assistance on subdivision, road developments, oil and gas development, mining projects and land management agency plans such as US Forest Service plans. Biologists have been providing feedback to RMU on the development of a guide for commenting on wind energy projects, a 'Renewable Energy Tracker' in ArcGIS Online, and an automated comment system for oil and gas leases. Review of projects for potential impacts to Species of Concern or federally listed threatened or endangered species is of particular importance to nongame specialists. MFWP staff preparing EAs and Wildlife Management Area management plans also consider impacts of habitat alteration and habitat needs of nongame species and rely on nongame specialist expertise.

Biologists participated as team members in the Judith Gap Wind Energy Technical Advisory Committee and the Spion Kop Wind Energy Technical Advisory Committee. MFWP Region 4 staff continued supervision and implementation of wildlife monitoring at Spion Kop Wind Farm. The Technical Assistance Committee approved the post-construction wildlife monitoring plan the region developed in 2015 and the monitoring program was implemented in 2016 and 2017. Primary focus of the plan is on fatality monitoring which requires searching a portion of the turbines for fatalities, searcher efficiency trials, and carcass persistence monitoring. MFWP involvement in this project provides direct experience with rigorous wildlife monitoring and allows staff to better evaluate and provide comments on other proposed or existing wind farms.

Figure 1. Spion Kop wind farm. (Photo, Kristina Smucker)

Habitat Restoration

Foys Bend Restoration Project along the Flathead River

The purpose of the ongoing Foys Bend restoration project is to preserve, create, enhance, restore, and protect the functional values of riparian lands, wetlands and other lands, and to conserve natural values including fish and wildlife habitat, water quality, flood water retention, groundwater recharge, open space, and aesthetic values on the Flathead River. This project will ultimately help maintain the habitat integrity of this portion of the Flathead River system where the Stillwater and upper Flathead merge and transition into the meandering lower Flathead River system. The MFWP Region 1 nongame specialist has participated in the planning and implementation of this restoration project since its inception to include securing State Wildlife Grant funding for particular work.

Long term benefits to habitat, wildlife, and people from the Foys Bend project:

- Protect native fish habitat for bull trout and westslope cutthroat trout.
- Improve habitat for over 50 native terrestrial wildlife species including yellow warbler, wild turkey, and white-tailed deer.
- Provide potential future nesting trees for bald eagles, great blue herons, red-tailed hawks, osprey, great horned owls, and woodpeckers.
- Develop effective and economical techniques for stream bank stabilization and riparian restoration projects.
- Potential to expand project benefits throughout the valley through demonstrated success.
- Increase opportunities for wildlife viewing, hunting, and fishing through increasing habitat quality in an area currently open to the public.
- Further solidify partnerships with contributions from Trout Unlimited, Flathead Audubon, Flathead Lakers, Flathead Land Trust, Natural Resources Conservation Service, and MFWP.

See below link for a Montana Outdoors report:
https://www.bing.com/videos/search?q=youtube+winston+greely+foys+bend+restoration&&view=detail&mid=630A4BADA6CB066C7C87630A4BADA6CB066C7C87&&FORM=VRDGAR

Figure 2. Photo of exclosure immediately after restoration planting from middle reference point looking west in the fall of 2009.

Figure 3. Photo of same exclosure from middle reference point looking west in summer of 2013.

Drawdown of Pond 3 at Canyon Ferry WMA

Figure 4. Drawdown at Canyon Ferry WMA and resultant dead carp.

An effort to improve wildlife habitat conditions at Canyon Ferry WMA was undertaken in 2017 spearheaded by the Townsend conservation technician and wildlife staff. Specifically, a slow water drawdown was conducted on Pond 3 in the Fall with the goal of completely killing the carp and aerating the pond soils. Prior to the drawdown, the water had extremely high turbidity caused by high densities of carp which consequently inhibited the growth of submergent aquatic vegetation. Turbidity and the presence of large bodied fish are also negatively associated with wetland invertebrate density and diversity. The goal of this work was to completely dry up the pond or get water levels low enough that carp would be winter killed. Following a total drawdown, the pond was kept dry to thoroughly aerate the wet soils and to stimulate the production of invertebrates and aquatic submergent vegetation production for the benefit of waterfowl. The drawdown was also intended to improve foraging opportunities for shorebirds by markedly increasing invertebrate abundance and improving pelican nesting opportunities.

Buffalo Coulee Conservation Easement Monitoring

A primary objective of the Buffalo Coulee Conservation Easement Management Plan is protection and enhancement of riparian habitat associated with the Milk River and Prairie streams. The Milk River is listed in the 2015 State Wildlife Action Plan as a Regional Focus Area. Buffalo Coulee Conservation Easement is broken into three separate allotments; Buffalo Coulee, Mooney Coulee and Riverside. Bird surveys will be conducted on Mooney Coulee and Riverside for baseline data and on Buffalo Coulee to monitor riparian habitat and range improvements. Some of the species of concern that have been detected to date include Sprague's pipit, Baird's sparrow, Chestnut-collared longspur and Brewer's sparrow. Some of the previously farmed areas on the Buffalo Coulee allotment will be planted with native species to improve cover for small mammals. To determine benefits of planting, six small mammal trapping transects will be surveyed biannually in 2015, 2017, and 2019. Findings will be presented following the 2019 surveys.

Citizen Science

MFWP worked with Montana Audubon to recruit and support volunteers for black swift, black rosy-finch, and chimney swift surveys and vacant Breeding Bird Survey routes. MFWP and Montana Audubon facilitated two trainings for 26 volunteers interested in black swift monitoring in 2017. MFWP staff in Regions 1 and 2, Montana Audubon and 11 volunteers (working 234 hours) surveyed 13 waterfalls, resulting in the location of three new black swift colonies. (Additional information about swift surveys can be found in the Species of Greatest Inventory Need section of this report).

Figure 5. Overwhich Falls in the Bitterroot Mountains. (Photo, Lauri Hanauska-Brown)

MFWP staff in Regions 3 and 5 worked with Audubon to survey black rosy-finch habitat above 10,000 ft elevation. Citizen science guides were developed and plans to host a training with backcountry guides is planned for 2018, with additional 'back-country ready' volunteer outreach planned for 2018. (Additional information about finch surveys can be found in the Species of Greatest Inventory Need section of this report). MFWP staff in Regions 5, 6, and 7 worked with Audubon to develop a citizen science identification guide for the monitoring of chimney swift (Figure 6.). Survey information was provided on the Montana Audubon citizen science webpage and a training is planned for 2018. More information on citizen science efforts can be found at https://www.montanabirdsurveys.com/ . (Additional information about chimney swift surveys can be found in the Species of Greatest Inventory Need section of this report).

Figure 6. Sample of the survey guide for citizen efforts on chimney swift surveys.

Working with Last Chance Audubon and Flathead Valley Audubon, MFWP supported HawkWatch efforts at the Big Belts and Jewel Basin sites, respectively. Over 1,000 hours of volunteer time were donated to track the migration of golden eagles and other raptors during the fall migration. The Big Belts site is a relatively new HawkWatch site but has consistently recorded some of the highest numbers of migrating golden eagles in the continental US with over 2,500 eagles observed annually. Both sites provide additional opportunities for citizens to get a unique look at a variety of raptor species through formal tours and individual trips to the observation sites.

Long-billed curlews are another good species well suited for monitoring by citizen scientists. In MFWP Region 4, volunteers from the Upper Missouri River Breaks Audubon Chapter have been a critical resource for curlew monitoring, logging over 500 hours. In 2016, 21 Audubon volunteers completed 24 survey routes and in 2017, 30 volunteers completed 33 survey routes.

Species of Concern Monitoring and Species in Greatest Need of Inventory Monitoring

Wildlife conservation depends on understanding the species across the state, including the status and distribution of individual species within a given range. Each species has its own habitat and management needs; therefore, the natural history of each species must be studied. Sometimes, during inventories and natural history observations, cryptic species are discovered.

Integrated Monitoring in Bird Conservation Regions

Through a partnership between MFWP, US Forest Service, Intermountain Bird Conservancy, Bird Conservancy of the Rockies, Bureau of Land Management, and 12 other states, statewide bird monitoring (primarily for landbirds) was implemented for the 8th year in Montana in 2017. The Integrated Monitoring in Bird Conservation Regions survey known as IMBCR is stratified by land ownership and Bird Conservation Regions (10, 11, and 17). A total of 204 transects were surveyed between May and July 2017, 71 of which were in part or in whole on private lands. The overall statewide effort resulted in the completion of 2,458 avian point counts (Figure 7.) As part of a multi-year, integrated dataset, this information contributes to distribution and population trends across Montana and the western U.S. A detailed report is available at www.birdconservancy.org.

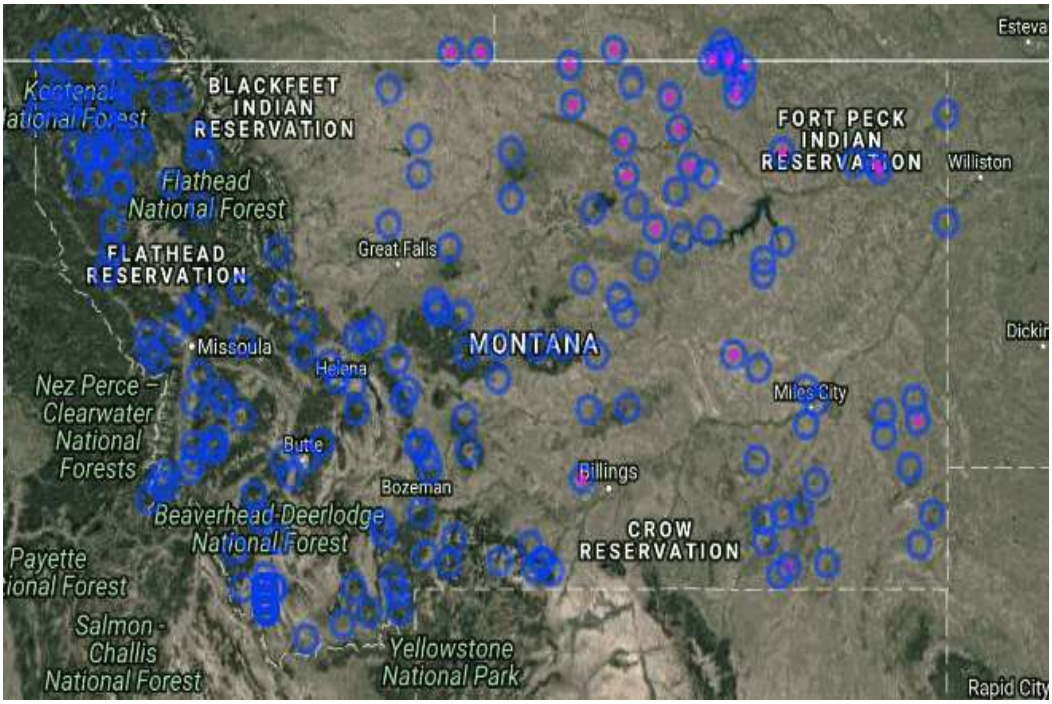


Figure 7. Locations of Integrated Monitoring at Bird Conservation Region surveys in 2017. Circle with pink dots indicate occurrence of Baird's sparrow, chestnut-collared longspur, McCown's longspur, and/or Sprague's pipit. (Avian Data Center 2017)

Long-billed Curlews

Since 2013, MFWP has worked with Montana Audubon and members of the Montana Bird Conservation Partnership to implement the Long-Billed Curlew Habitat Initiative. Work of this initiative includes surveys for nesting curlews across western Montana and identification of high quality habitats for prioritizing conservation efforts. Surveys to date have focused on the Upper Missouri and Mission Valleys where the partnership is compiling strategies for habitat conservation. The use of land owner incentive programs is one of those potential strategies and land owner brochures showing best management practices for grassland conservation have been developed. Management for curlews targets grazed, native vegetation for breeding sites and croplands of short to moderate height grasslands for brood rearing and foraging. The effectiveness of conservation actions will be monitored by the Montana Bird Conservation Partnership members and partners of the Long-Billed Curlew Habitat Initiative.

Some MFWP Regions have conducted annual curlew monitoring since 2015 involving staff from across the Divisions. Objectives of this monitoring include: (1) assessment of curlew distribution statewide (Figure 8), (2) establish routes for a grassland indicator species that could be used as long-term trend areas, (3) coordinated large-scale statewide effort to fill in data gaps, target focal areas, and use new curlew observations to refine the current predictive habitat suitability model (Figure 9a and b), and (4) use data on curlew distribution/density on the landscape to inform conservation efforts. Curlew numbers appear to be widely distributed across the state. Surveys were not designed to determine population trends.

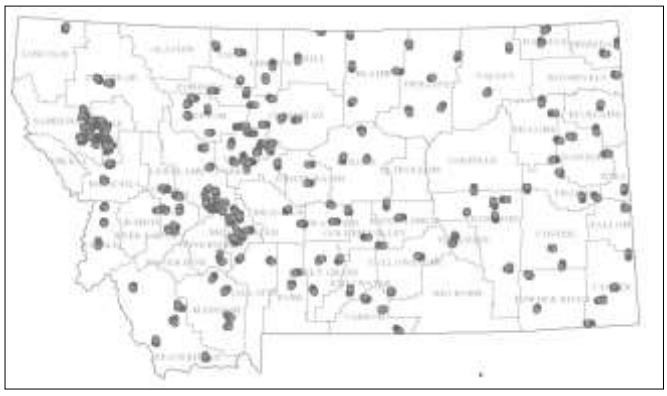
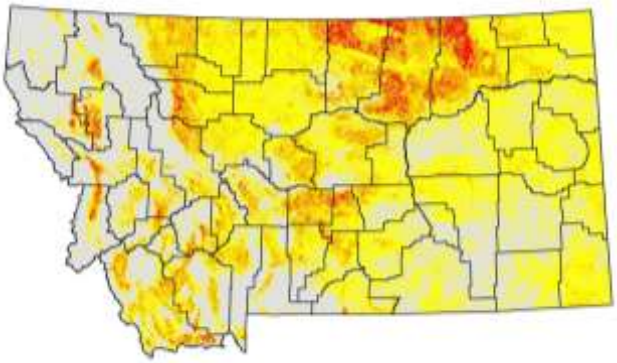


Figure 8. Distribution of structured surveys for long-billed curlew, 2012-2016.

Figures 9a and b. Long-billed curlew MAXent model output showing habitat suitability classes from December 2012 (a.), then refined by new observations throughout the state and remodeled in October 2016 (b.). Red shading represents optimal habitat suitability, orange represents moderate, yellow represents low, and gray represents generally unsuitable habitat.

a.



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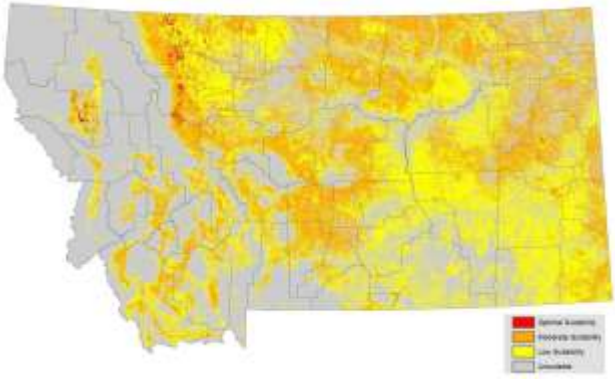


Grassland Birds

North American grassland bird populations have declined faster than any guild within the last 40 years. Baird's sparrow, chestnut-collared longspur, McCown's longspur, and Sprague's pipit are of conservation concern due to dramatic population declines. Northeast Montana is estimated to harbor between 25-50% of the U.S. breeding populations of these species. Conservation practitioners in this critical landscape are implementing management to benefit songbirds. This management includes easements, grassland restoration, improvements to grazing systems, and Candidate Conservation Agreements with Assurances. There is currently no method to quantify the biological results of these management efforts at local or regional scales.

To address this, MFWP Region 6 is working on a targeted survey effort to measure species responses to conservation actions within two crucial landscapes of northeast Montana, each of which is 2.5-3.5 million acres. This is in addition to bird monitoring with IMBCR and BBS methods. The program is designed to track bird responses to management and their population trends within a tractable landscape and management timeframe. This work may offer invaluable support and guidance for important grassland conservation efforts. Measurement of tangible bird response could also create positive feedback for private lands stewardship.

Three surveys were conducted during summer 2016 to test the protocol. This experience allowed the protocol to be refined and time to gain interest from other agencies. In summer 2017 agency volunteers completed 35 targeted transects in the Glaciated Plains and Northern Grassland landscapes. Protocols from these MFWP Region led efforts, IMBCR, and BBS efforts are currently being evaluated to determine the most effective method to measure bird response to MFWP habitat management programs such as the Working Grasslands Initiative.

Figure 10. Chestnut-collared longspur.

Golden Eagles

Concern over declining golden eagle populations in North America has been growing over the past decade. Some nesting populations in the Intermountain West have been documented to be in decline in association with reductions in native habitat and in some cases prey populations. To get better Montana-specific population information for this species, the Golden Eagle Working Group and MFWP prioritized golden eagle nest surveys beginning in 2012. In three short years of survey, many areas of the state have been extensively surveyed and golden eagle nests have been found in greater number than expected. In 2015 alone, 80 active nests were found in central and eastern Montana during a search of the highest quality habitat.

In 2017, the focus of aerial surveys was in MFWP Region 5 (Bird Conservation Region 10/11). Surveys were conducted by helicopter in June targeting areas at high risk of development for wind and/or where predictive models identified highly suitable habitat. All observations of golden eagles and/or nests (noted as active or inactive) were recorded during the survey. A total of 34 adults, 15 nestlings, 14 active nests and 44 inactive nests were recorded during 10 hours of flight time. Surveys were targeted at appropriate habitat, e.g., cliffs and plains cottonwood trees, within selected grid cells. Figure 11 highlights the areas that have been flown in Montana between 2014 and 2017. Additionally, a partnership with the Montana Peregrine Institute and citizen scientists provided additional data on activity at multiple nests near Montana rivers during surveys conducted for peregrine falcons.

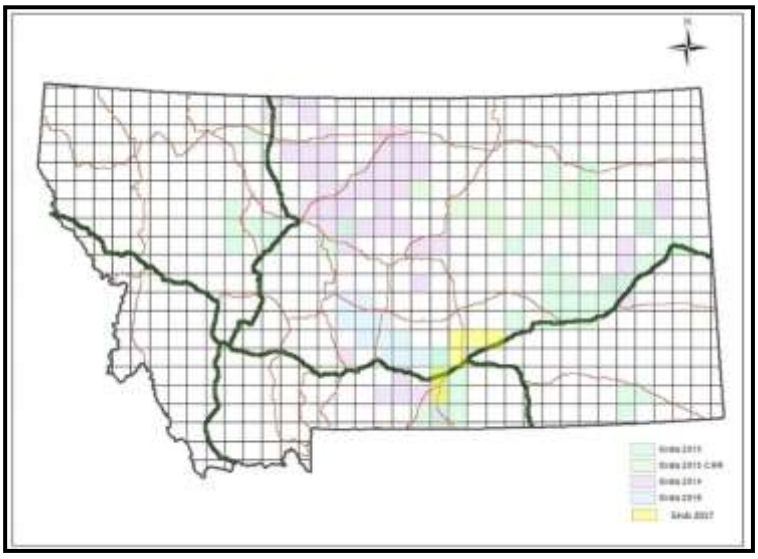


Figure 11. Surveys conducted from 2014-2017 searched some amount of suitable golden eagle habitat within each shaded cell. An eagle, active nest, or an empty nest was found within each sampled cell.

Figure 12. Golden eagle nestlings on a cliff ledge along the Yellowstone River.

Harlequin Ducks

MFWP and collaborators marked 18 male and 17 female harlequin ducks in 2016. Of those, five breeding pairs were marked in Montana outside of Glacier National Park (GNP). Males were banded and implanted with PTTs (Figure 13.) The PTTs allow biologists to receive data on a preprogrammed schedule via data downloads and generally provides more accurate location information. One mortality occurred within the first week of capture. Although we were unable to rule out the potential for capture myopathy, an investigation of the recovered PTT and the surrounding area suggested that the duck may have been killed by a predator. Migration duration ranged from 1.7 to 9 days with distances between approximately 444 and 1,120 miles. Stopover habitat consisted primarily of rivers and mountain streams while one bird made a single stop on a lake in Washington. Apparent molt areas were Port Angeles, WA; Allison Harbour Provincial Park (Smith Sound), BC; Lyell Island, BC; and Read Island, AK.

Females were also banded, but instead of PTT implants, geolocators were attached to colored leg bands for tracking purposes. In the late spring of 2017, biologists recaptured four of the females marked in 2016 to remove the geolocators and retrieve the data. Biologists also captured two new pairs near the Spotted Bear River. Unfortunately, all geolocators malfunctioned and no data was retrieved. Biologists with MFWP and GNP have received additional funding to continue work for at least two more years. MFWP will attempt to capture and mark 10 pairs to include four pairs in northwest Montana, four pairs on the Rocky Mountain Front, and two pairs on the Boulder River south of Big Timber. GNP will attempt to capture and mark eight pairs within the park expanding their efforts beyond Upper McDonald Creek.

See below link for a Montana Outdoors report: https://www.bing.com/videos/search?q=montana+outdoor+report+harlequin+duck+you+tube&view=detail&mid=6AC2310C56325C438A686AC2310C56325C438A68&FORM=VIRE

Figure 13. Male harlequin relocations after summer banding in Montana.

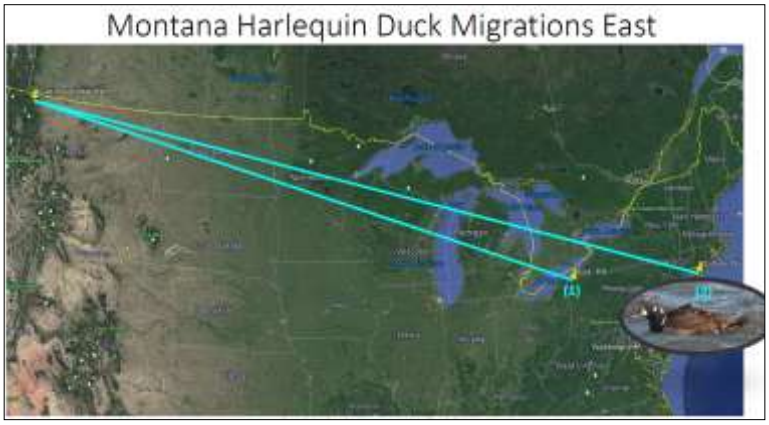


Figure 14. Winter locations of two young of the year male harlequin ducks banded in Montana.

Incubation Dates for Harlequin Duck Females in Northwestern Montana				
Geolocator ID	**Stream Name**	**Incubation Start**	**Incubation End**	**Incubation Days**
597	Snyder Creek	5/15/2016	6/16/2016	33
598	Upper McDonald Creek	5/28/2016	6/13/2016	20
599	Grave Creek	6/1/2016	7/5/2016	35
600	Rock Creek	6/1/2016	7/2/2016	33

Waterbirds

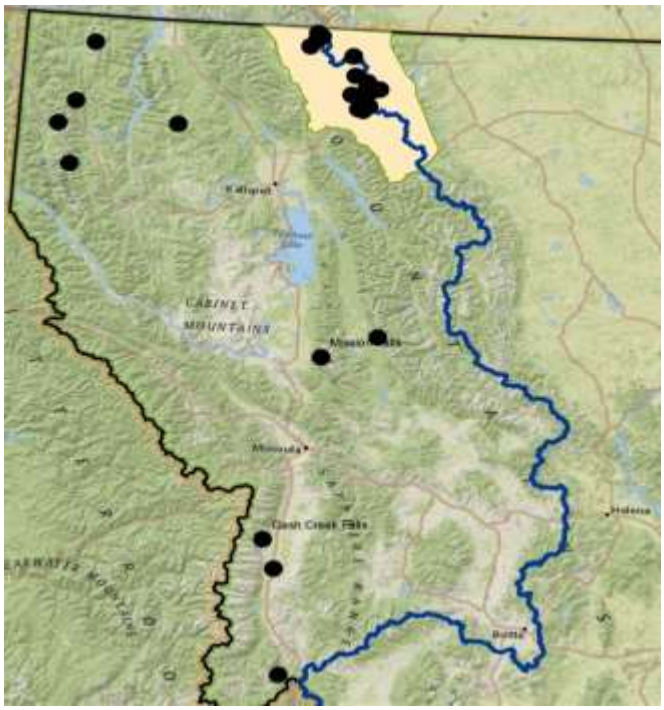
Colonial waterbirds have been surveyed annually at 17 priority sites from 2009 to 2016 by MFWP, Montana Audubon, and a variety of conservation partners. Over 20 species have been documented including avocets, pelicans, terns, gulls, grebes, ibis and cormorants. This work initiated with a 2009 effort to survey colonial nesting waterbirds west-wide. MFWP and partners have continued these surveys with more than 250 individual locations having been surveyed, including the sites identified as priorities.

Black Swifts

Similar to efforts in 2016, MFWP staff conducted aerial reconnaissance of potential black swift nest habitat in MFWP Regions 1, 2 and 4 during the late summer of 2017. Criteria for judging the suitability of waterfalls have been compiled based on the characteristics of known occupied sites and staff experience. Waterfalls in areas with lakes have the most reliable water flows. Waterfalls with good flows, vertical drops and potential nesting ledges are marked and photographed for follow up ground surveys. The amount of moss available for nest building, and suitable nest niches cannot typically be determined from aerial surveys, but is documented during ground visits.

MFWP staff flew the higher elevations of the Great Burn in the northern Bitterroot Mountains from Lolo Pass north to Deer Creek. Information from this flight will be used to produce a map showing the distribution of potentially suitable waterfalls and identify those accessible by trail for future ground surveys.

MFWP staff also flew waterfalls in northwest Montana finding 16 of 53 to have high potential for swift nesting. Staff also conducted ground-based monitoring at four of five known colonies in northwest Montana. Black swifts were observed at only two waterfalls. In Region 4 staff flew the Rocky Mountain Front and found 9 of 15 waterfalls with moderate to high potential for swift habitat. Staff conducted ground surveys at four waterfalls but did not observe nest activity at any site.



In 2017, MFWP staff also partnered with Montana Audubon and Glacier National Park to learn more about swift distribution, refine the criteria being used to score waterfall suitability, increase the number of waterfalls being surveyed, and increase the consistency of survey methods being used. Montana Audubon signed up volunteers to assist MFWP and Glacier National Park. Forty-eight evening surveys were conducted resulting in the documentation of 17 new colonies.

See below link for a Montana Outdoors report:
https://www.bing.com/videos/search?q=montana+outdoor+black+swift+you+tube&&view=detail&mid=13F87CD99A3A0F8B612113F87CD99A3A0F8B6121&&FORM=VRDGAR

Figure 15. Locations of the 35-known black swift colonies in Montana; 25 locations are in Glacier National Park.

Chimney Swifts

Chimney swifts are a Species of Greatest Inventory Need for the state. In 2017, nongame specialists in Regions 5-7, the avian specialist, and personnel with MT Audubon worked together to produce a survey protocol and sampling method to increase the observations of chimney swifts throughout their range within the state. A survey protocol was adapted from an existing protocol used by a citizen science swift watching program in Canada. Sites were chosen based on buildings built pre-1960. Studies done in Canada showed that buildings built before 1960 were likely to support chimneys made of the appropriate materials conducive to chimney swift roosting and nesting.

Efforts in 2017 were aimed at conducting surveys with MFWP staff as well as through citizen science efforts. MFWP Region 5 conducted two surveys and detected no chimney swifts. In MFWP Region 6, chimney swifts were found on three of four surveys. In MFWP Region 7, 20 surveys were completed within 4 different towns. At least one roost was documented in each town. In total, eight chimneys were identified as roosts and 110 individual chimney swifts were documented. This effort will continue during summer 2018 and potentially 2019.

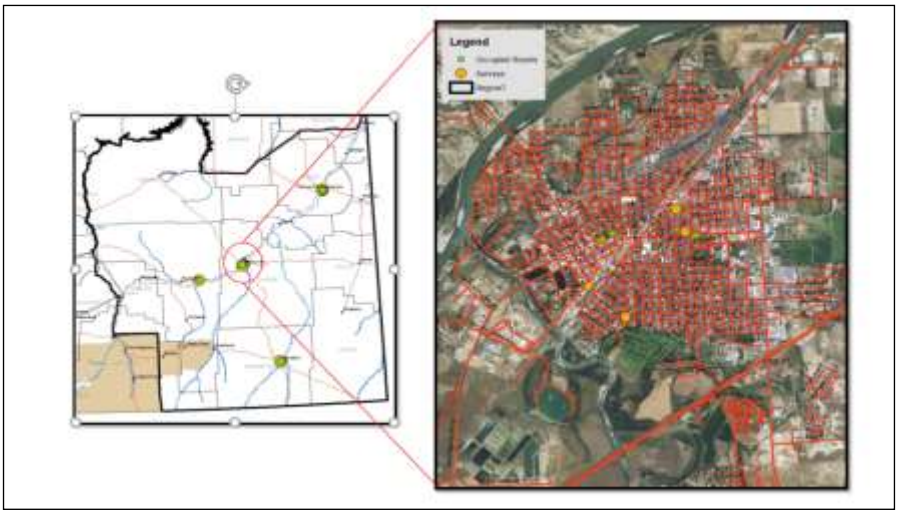
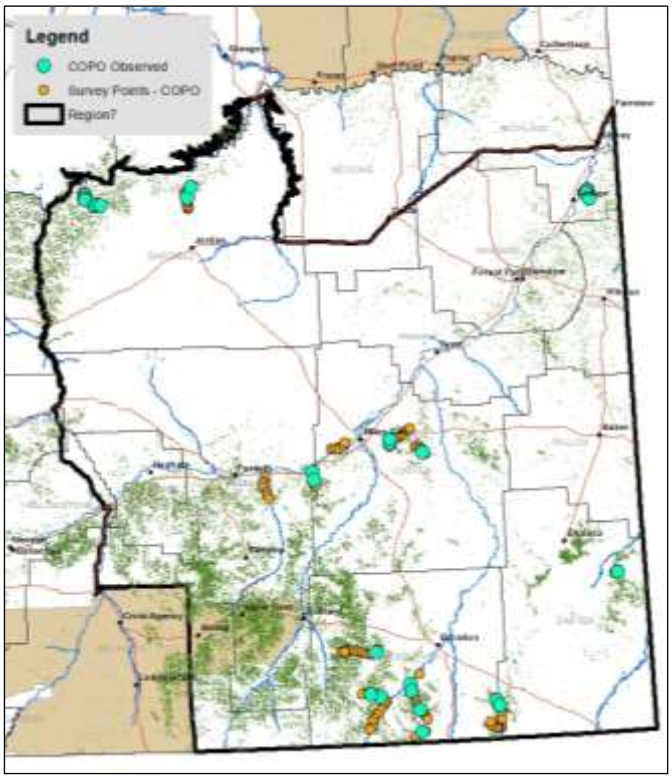


Figure 16. Example of an urban survey area for chimney swifts from MFWP Region 7 showing the highly urbanized habitat of this species.

Common Poorwills



Common poorwills are a Species of Greatest Inventory Need. The goal within MFWP Region 7 is to conduct surveys within suitable habitat across the region and increase the number of records in the Montana Natural Heritage Program database. A survey protocol was adapted from the MPG Ranch's citizen science protocol to provide a structured survey that could be used by biologists and the public. Formal surveys were conducted by biologists, wardens, and volunteers in areas of suitable habitat (Figure 17.) In 2017 we conducted 14 formal surveys and document 34 individuals. More work is needed to monitor this species across their range in Montana.

Figure 17. Areas surveyed for common poorwills in MFWP Region 7 (orange circles) and points where detected (turquoise circles). The areas shaded in green represent ponderosa pine and juniper habitat commonly associated with common poorwills and will be the focus of future efforts.

Coeur d'Alene Salamanders

The Coeur d'Alene salamander is a Species of Concern that inhabits springs, seeps, wet talus slopes, and waterfall spray zones in western Montana and northern Idaho. The salamander is also a Species of Greatest Inventory Need due to lack of recent surveys in MFWP Region 2. In 2017, MFWP Region 2 staff surveyed eight sites for Coeur d'Alene salamanders, including four of the six known sites and five other suitable-looking sites. We documented Coeur d'Alene salamanders at three sites where they had been previously documented. No new Coeur d'Alene salamander sites were identified. Weather conditions during 2017 were not very good for Coeur d'Alene salamander surveys and may have negatively impacted the survey results. One to two salamanders were typically observed during the successful survey nights, which is typical of past surveys. One juvenile salamander was observed at the Trout Creek Seep site along Trout Creek Road. Future surveys should focus on nighttime surveys at additional springs, seeps, and waterfalls in the Bitterroot Mountains, including the Great Burn area north of Lolo Pass, and in Woodman Creek.

Bog Lemming Monitoring, Protocol Development and Testing

Northern bog lemmings are a small, wetland mammal that are extremely difficult to capture using traditional live trapping methods. MFWP biologists have been collecting small mammal scat samples to develop DNA profiles that may help identify the presence of bog lemmings in western Montana. A non-invasive protocol for detection such as this may help prioritize habitat conservation for this Species of Concern. MFWP collected and submitted scat samples from fens around western Montana for species identification with the following goals for 2016; 1) determine if muskrat lure on scat boards was more attractive to bog lemmings than non-lured boards, 2) determine if bog lemming DNA can be sequenced from scat collected from natural latrine sites in wetlands, and 3) obtain a rough estimate of how many scat samples are needed to verify bog lemming presence at wetlands where they have been previously documented. Wetlands sampled included nine sites from mountain ranges in west-central Montana (southern Mission Mountains, Rattlesnake Mountains, Sapphires, and Pintler ranges), and one site in northwestern Montana (Purcell Mountains).

DNA identifications were obtained from 140 out of 185 (76%) total scat samples submitted from scat boards and from natural latrine sites in the wetlands. The meadow vole was the most commonly detected small mammal from scat samples. We identified bog lemmings from 19 scat samples, collected at two wetlands where bog lemmings had been trapped previously, i.e., Finley Fen and Hawkins Pond. Lemmings were documented from scats collected on boards at Finley Fen and from scats collected in natural latrine sites at Hawkins Pond. No bog lemmings were identified from scats collected from the other four known bog lemming sites or from any of the wetlands where they have not been previously documented. Other species detected included the water vole and red-tailed chipmunk.

Camera trap methods have also been developed by MFWP biologists for detecting bog lemmings and are being refined for future use.

Figure 18. Photo of a bog lemming from a trail camera at Finley Creek Fen. (Photo, Kristi Dubois)

Great Gray Owl Monitoring, Protocol Development and Testing

Minor changes were made to the great gray owl survey protocol and a model of potential habitat was used to randomly select sites for survey during 2017 and 2018 (Figure 19.) A handful of sites were visited in 2017 as a test of the protocol. Biologists are working to create user friendly site maps and data entry options for volunteers prior to expanding survey efforts for 2018. An assessment to determine the minimum number of surveys required for commenting on species status is pending.

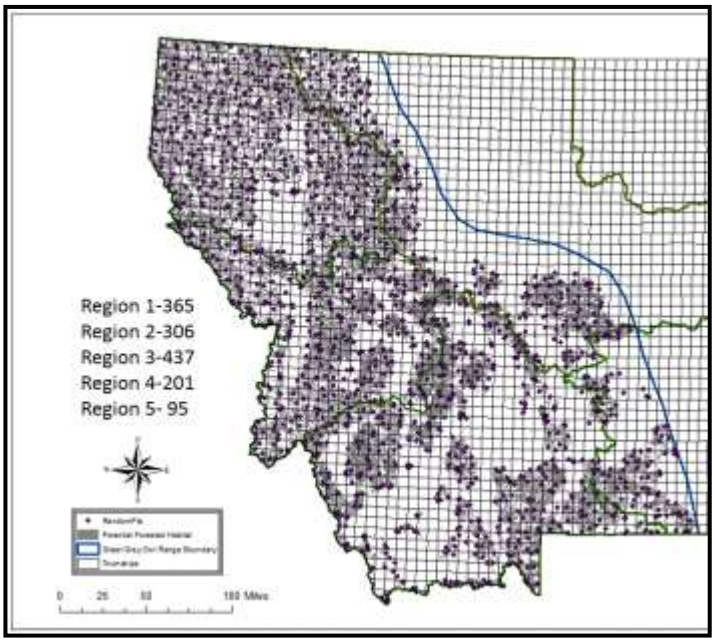


Figure 19. Map indicating random points placed in forested habitat by townships to guide great gray owl monitoring in 2017 and 2018.

Greater Short-horned Lizard Monitoring, Protocol Development and Testing

Greater short-horned lizards are a Species of Concern and a Species of Greatest Inventory Need for the state. Biologists in MFWP Regions 4-7 worked together to develop a survey protocol and sampling method to increase observations of lizards throughout the state (i.e. outreach within local communities, citizen science, etc.). Biologists worked with a GIS specialist to identify areas within the greater short-horned lizard's range that meets criteria for suitable habitat determined through literature review and expert opinion. Six variables: elevation, landcover, riparian habitat, ruggedness, slope, and soil type were used to develop the habitat suitability model (Figure 20.) We based our values for each variable on previous observations made in the Montana Natural Heritage Program database and defined the parameters for each variable based on 95% CI. Surveys are to be conducted from May to September using the Amphibian and Reptile Visual Encounter Survey methodology.

In 2017, 13 formal surveys were conducted with few lizard detections. Lizard observations were submitted by hunters, MFWP biologists and others following a public campaign asking for such observations. Specifically, in MFWP Region 6 information on lizard sightings was requested through social media and press releases, during late summer/fall 2017. The public was receptive and 16 new locations with 22 individuals were reported.

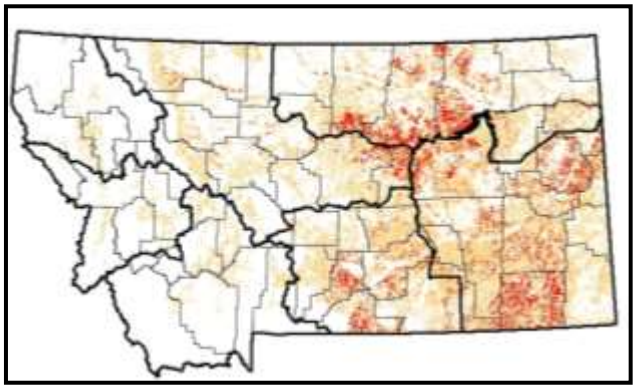


Figure 20. Habitat suitability model for greater short-horned lizard, darker colors represent most suitable habitat.

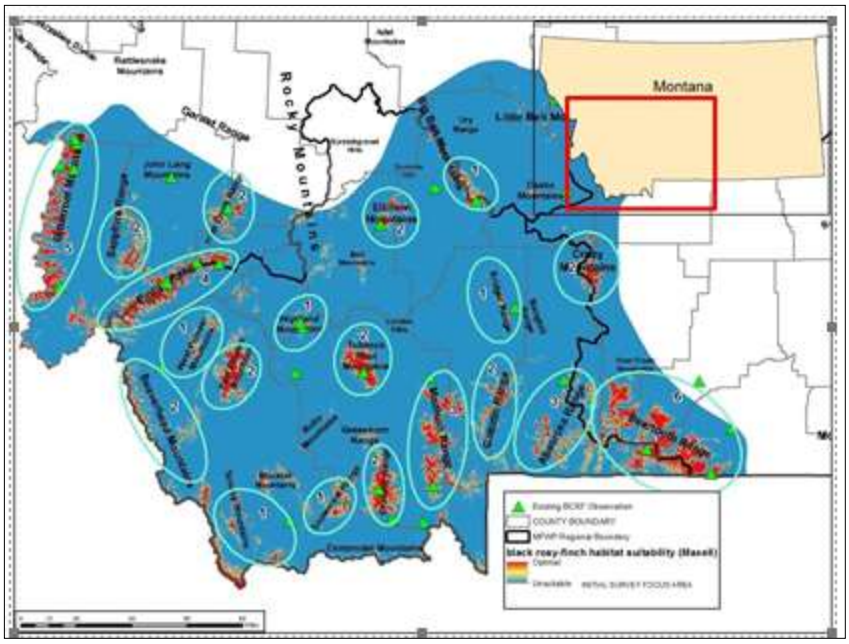
Rosy Finch Monitoring, Protocol Development and Testing

Rosy finches are a high elevation Species in Greatest Need of Inventory. While a small number of black rosy-finch surveys were conducted in 2016 substantially more effort was put into mapping potential habitat to guide future surveys in 2017 and 2018. It is important to use existing data and knowledge to efficiently guide survey effort as this species most often inhabits high alpine cirques above 9,000 ft. where access is difficult. Extensive mapping of potential black rosy-finch breeding habitat was completed by a Montana State University intern in the spring of 2017 using predicted range information described by the Montana Natural Heritage Program habitat suitability model (Figure 21a.) Figures 21b and c provide example maps that could be given to a biologist or volunteer surveyor to direct them to high priority survey areas. A detailed protocol for surveys has also been developed (visit www. Montanabirdsurveys.com).

In 2017 MFWP Region 3 staff conducted five black rosy-finch surveys during which 13 flocks of finches were detected. MFWP Region 5 staff conducted five black rosy-finch surveys detecting 44 finches. One additional bird was observed outside of the survey period.

Figures 21a-c. Predicted range of the black rosy-finch and selected ranges for ground-based surveys (a) and maps produced to guide surveyors in the field. Primary surveys sites are within the red polygon (b-c), showing the north-facing viewshed.

a.



b.

c.

Bat Mist-net and Acoustic Monitoring

Although bat acoustic data is extremely important for determining species presence and distribution mist-netting surveys are important for validation of species, given the challenges with correctly identifying acoustic calls. Mist-netting surveys also provide valuable information on sex, age, and reproductive status of animals that is unobtainable from acoustic efforts. Previous mist-netting efforts in eastern Montana are limited but are now particularly critical based on the 2015 ESA listing of the Northern long-eared myotis (*Myotis septentrionalis*) as a threatened species. In 2016 MFWP surveyed 23 sites across the nine counties where the species is listed (Figure 22.) Mist-nets were placed adjacent to or within riparian forest over or near water features. Of the 13 species expected to be found within the project area, nine were captured during surveys. Of these species, the hoary bat and little brown myotis are classified as Species of Concern, the Eastern red bat and silver-haired bat are classified as Potential Species of Concern, and the Northern long-eared myotis is listed as federally threatened. In total there were 129 individual bats captured.

Figure 22. 2016 mist-netting locations for Northern long-eared myotis capture effort in MFWP Regions 6 and 7. The first bat captured at Snowden FAS, a post-lactating female was genetically confirmed as a federally listed Northern long-eared myotis.

Acoustic monitoring efforts continued throughout Montana in 2017 to establish baseline information on all bat species and their distribution in the face of white-nose syndrome. MFWP, the Montana Natural Heritage Program and US Fish and Wildlife Service continued efforts to capture Northern long-eared myotis with even more focus on their potential habitat. Netting at Diamond Willow FAS along the Yellowstone yielded a record capture of seven female Eastern red bats. Although our acoustic stations have detected this species at many sites east of the Divide, in hand captures that give us data on age and sex have been rare. Prior to this the Heritage Program had records of just four females in hand and three that were observed by the general public. This high number of 2017 captures likely represents a migratory pulse. The area where a Northern long-eared myotis was detected in 1978 has not been surveyed recently as it is forested with no water source nearby to focus mist-netting. In 2017, a new net set up was tried with net placement in a low canopy forest with relatively tight flyways (e.g. 3-4m to the bottom of the canopy and enough space between trunks to walk through). Four juvenile male bats suspected to be Northern long-eared bats were captured and later confirmed as such through DNA testing of wing tissue and guano. Additional bats that we presume were the same species were seen responding to the distress calls of one individual during handling.

The following night we resurveyed the Snowden Bridge FAS. Again, we placed nets in dense forest in areas with low canopy. There was intermittent light rain and we closed the nets around 11 pm. Even though the nets were only open a few hours, we captured six individuals with similar characteristics to

the previous night that are likely Northern long-eared myotis including juveniles and adults, males and females. An additional site was trapped at a site just outside of the western boundary of Richland County on the Red Water River. No Northern long-eared myotis were caught here but two Townsend's big eared bats were captured. The species is known from mine surveys in the area but has not been detected since the 70's and these observations are the first for McCone County.

Bat capture data in northcentral Montana are very limited - eight counties have had fewer than 10 capture efforts. In 2017 MFWP netted at seven sites in three counties and captured 54 bats representing six species: little brown myotis, long-eared myotis, big brown bat, silver-haired bat, hoary bat, and an Eastern red bat – captured in Toole County. This is a far western capture record for an Eastern red bat in the state and is a confirmation of acoustic detections along the Rocky Mountain Front.

Long-term Species Monitoring

Least Tern/Piping Plover Monitoring

Least terns remain listed as federally endangered and piping plovers remain listed as federally threatened, however, little of the listed range for either species falls within Montana. Annual surveys along the lower Yellowstone River have collected data on terns and plovers since the 1990s. Sandbars or gravel bars that are not attached to the mainland and contain a portion of unvegetated gravel or sand are surveyed but surveys are not standardized and are limited by water levels and staff availability.

MFWP Region 7 participated in the 2016 Piping Plover International Census coordinated by the U.S. Fish and Wildlife Service. Two-hundred eighteen miles of the Yellowstone River from Hysham to the North Dakota border were surveyed over a period of five days during the international census window (June 4 – 17). Most island/shorelines were observed through the use of binoculars and walked when necessary (island too large to observe with binoculars). Three adult plovers and one nest with four eggs were observed.

In 2017, staff were able to monitor the lower Yellowstone River from Fallon to Glendive (the portion of river with consistent observations in the past). For least terns, 18 adults, three chicks (newly hatched), and three nests were documented. This was the highest least tern count in the last fifteen years, with the previous high count being 12 in 2015. For piping plovers, two adults and one nest with four eggs was documented. One pair of nesting piping plovers has been consistently documented on this stretch of the Yellowstone River for the last 5 years.

MFWP staff were involved in development of a new recovery plan for the piping plover from 2009-2016. That plan is currently awaiting approval by the US Fish and Wildlife Service. A delisting proposal for the least tern is expected sometime in 2018.

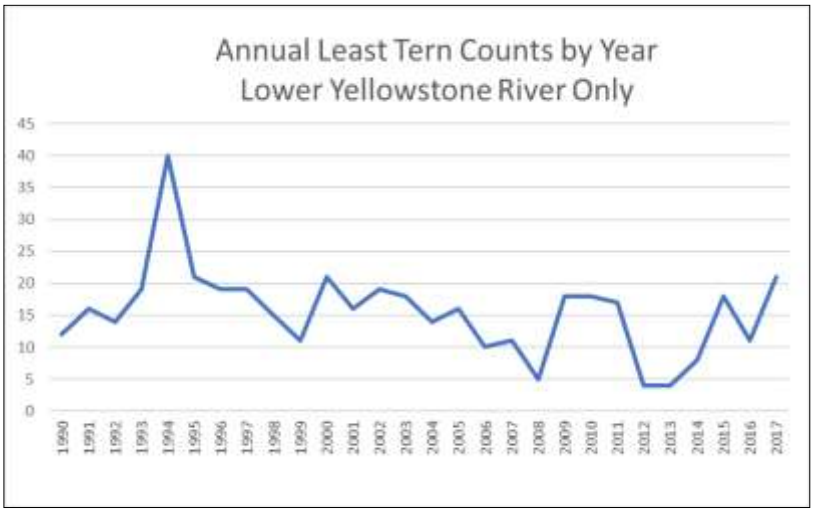


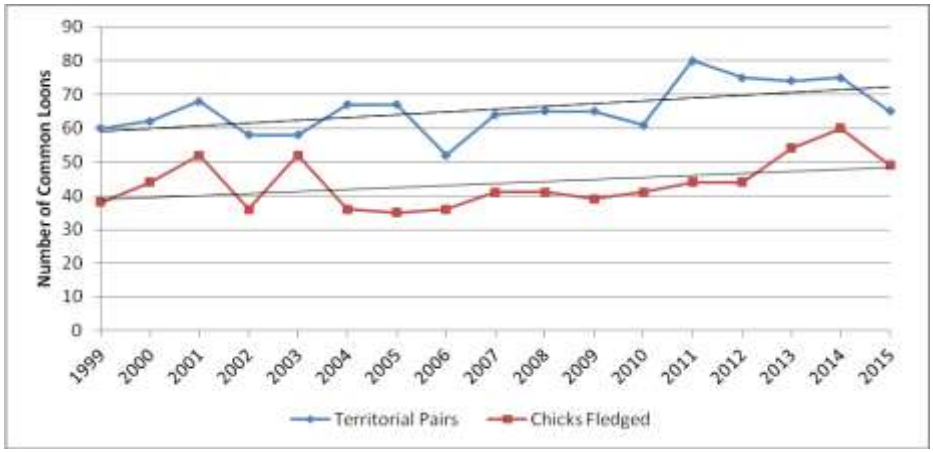
Figure 23. Annual least tern counts by year on the lower Yellowstone River. Annual piping plover data is spotty over this nearly 30-year period and thus not represented here.

Common Loons

MFWP has been involved in common loon monitoring and the protection of loon nests in NW Montana for nearly 20 years. Staff have led banding operations and supervised loon conservation interns who educate boaters and anglers recreating on loon nesting lakes. MFWP has also been an active member in the Common Loon Working Group. These efforts in coordination with multiple partners have led to some stabilization of loon population numbers and productivity. In 2017, 56 chicks survived to the July survey date.

As MFWP staff priorities have changed the Montana Loon Society and other partners are coordinating more population monitoring. The Biodiversity Research Institute (BRI) has initiated new research on loons in Western states and will take over banding efforts in spring/summer 2018. The objective of BRIs work is to establish a color-marked population in the West to gather data on dispersal from natal breeding lakes, site fidelity, annual mortality and survivorship, and baseline data on contaminants such as mercury.

a.



b.

Figures 24a and b. Data showing stable to increasing loon productivity since 1999.

Pelicans and Cormorants

Pelicans and cormorant nests have been monitored at Canyon Ferry WMA since the late 1980's with zero nests of each species documented in the initial years. Since the early 90's the number of cormorant nests increased steadily to ~840 in 2003 but declined since to only 162 cormorant nests in 2017. Conversely the number of pelican nests has increased precipitously with an all-time high of 2556 in 2013 and most recently 1638 pelican nests in 2017.

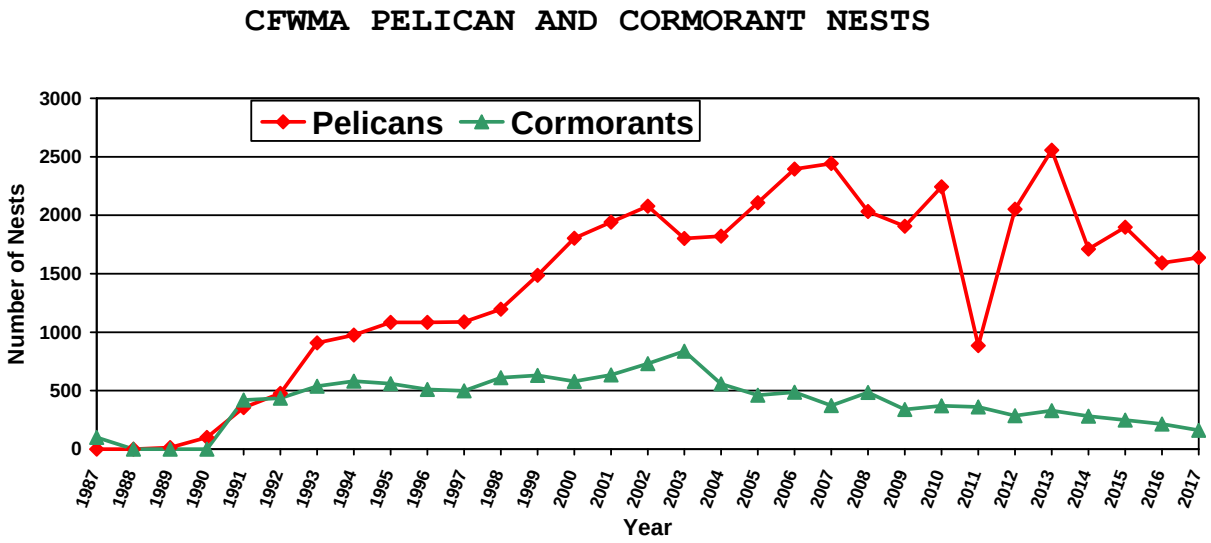


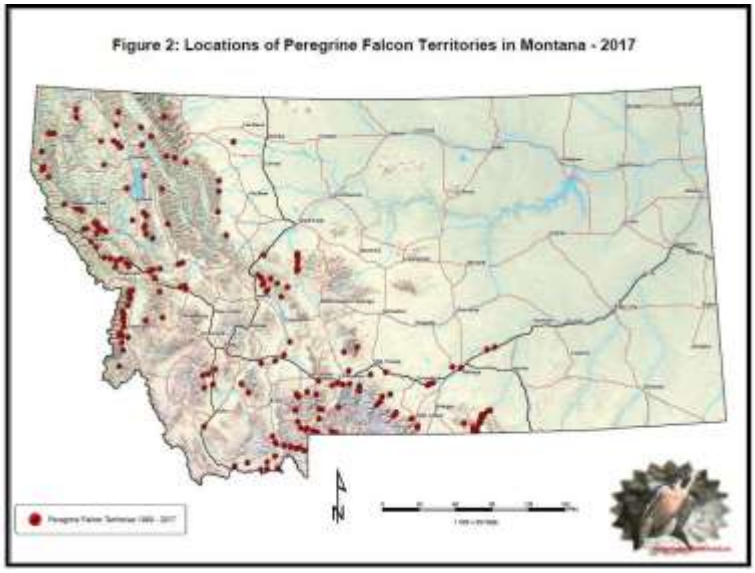
Figure 25. American white pelican and double-crested cormorant nesting has been documented by MFWP Region 3 personnel at Canyon Ferry Wildlife Management Area since 1987 (F. Jakubowski).

Pelicans and double-crested cormorants are also being monitoring at Arod Lake by the US Fish and Wildlife Service as part of the Monitoring Plan for the Western population of American White Pelican through the Pacific Flyway Nongame Migratory Bird Technical Committee (http://pacificflyway.gov/Documents/Awp_strategy.pdf).

Figure 26. Nestling pelicans.

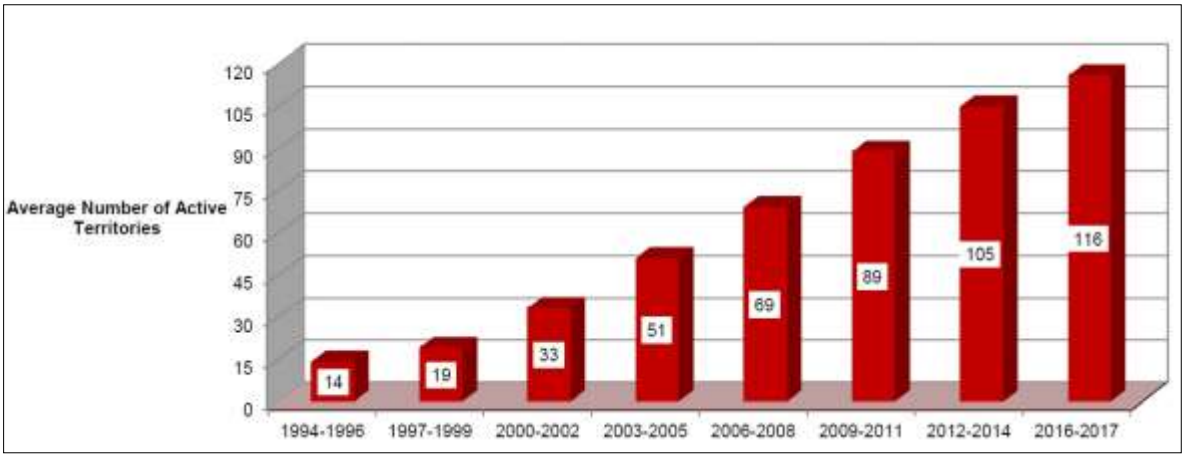
Peregrine Falcons

The Montana Peregrine Institute with Peregrine Watch, a volunteer group of surveyors, along with agency biologists surveyed 136 of 216 known peregrine falcon territories in 2017 and found 105 (77%) of them occupied (Sumner 2017). Observers counted 141 fledged young at 75 territories during 2017 for an average of 1.9 young per occupied successful territory (n = 75). Additionally, 19 golden eagle nests were documented while searching for peregrines. The reproductive data showed 12 eaglets at 8 golden eagle territories for a reproductive rate of 1.5 young per territory



Figures 27 and 28. Statewide peregrine territory map taken from the Montana Peregrine Institute Report 2017 and monitoring at a peregrine eyrie in Gallatin Canyon.

Figure 29. Number of active peregrine falcon territories by three-year averages (1994-2017).

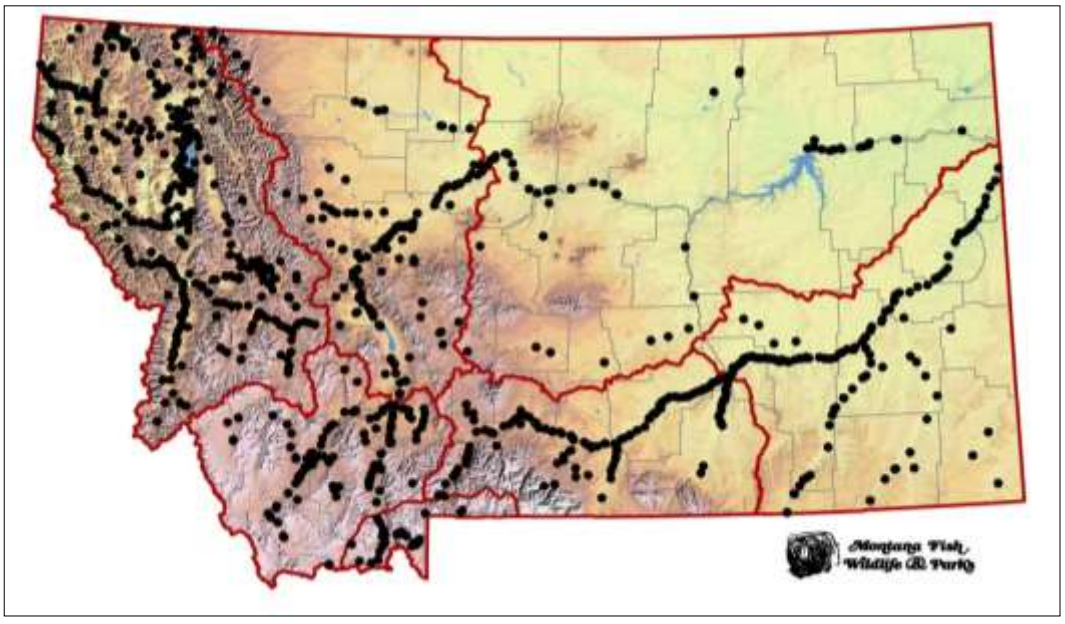


Bald Eagles

Statewide bald eagle populations have been monitored by MFWP for over 30 years with monitoring initially being focused on the known and historic bald eagle nesting locations along the major river corridors. As the numbers and geographic distribution of bald eagle nests expanded, cooperators were encouraged to expand survey efforts into the smaller tributaries, to determine specific nest site locations, annual occupancy and productivity. All bald eagle nests were monitored at this intensity each year for decades. Since recovery of the eagle however efforts to monitor the more than 750 nests across the state have been significantly reduced.

Efforts to closely monitor bald eagle nests in areas of the state where expansion continues remain in place, however, even those efforts have been reduced from previous years. In 2016, an aerial occupancy survey was conducted on the portion of the lower Yellowstone River from Miles City to the Bighorn River confluence in early May. During the survey we monitored 27 previously known nests and found 11 new nests with 9 classified as active and 2 as inactive. We observed a total of 31 adults and 31 juveniles. We also opportunistically checked nests from a boat during the Piping Plover International Census to determine if involving Fisheries Division staff in the future would be an option for monitoring. Not all nests were visible from the water, but for those nests that were, we were able to determine the number of fledglings and juveniles.

Figure 30. Known bald eagle territories in Montana as of 2014.



Monitoring Avian Productivity and Survivorship

A permanent bird monitoring station (Monitoring Avian Productivity and Survivorship: MAPS) has been set up and is being run annually by Butte Area Biologist Vanna Boccadori. Over the long term this intensive monitoring work will be used to evaluate habitat improvements on MT Haggin close to the Anaconda damaged area. Cabbage Gulch is located within the Mt Haggin Injured Area, part of the upper Clark Fork Superfund site. This area was a lodgepole forest a century ago but mining-related logging and 70+ years of emissions from the Anaconda smelter resulted in a denuded landscape. Since the shut-down of the smelter in the early 1980's, aspen has pioneered the area and is now the dominant forest cover type. The stands are early seral stage comprised of 10-20' sapling sized trees. It is expected that the breeding bird community will change over time as the aspen stands mature. The intent is to run the Mt Haggin MAPS station for a minimum of 15 years, preferably longer.

A MAPS station on the Beartooth WMA in MFWP Region 4 has been run by Region Wildlife Manager Graham Taylor since 1995.

Breeding Bird Surveys

The Breeding Bird Survey (BBS) program began in 1966, and in Montana there are 106 road-based routes, including 42 new routes established in 2015. A new coordinator began in 2017 (Elizabeth Madden, Bozeman), and with additional outreach from MFWP and Montana Audubon through the citizen science agreement, there are currently only 14 vacant routes. Multiple MFWP staff run BBS routes as well as dozens of bird watchers that volunteer their time. Results can be found at https://www.pwrc.usgs.gov/bbs/index.cfm. BBS data continues to be the foundation of many landbird trend estimates.

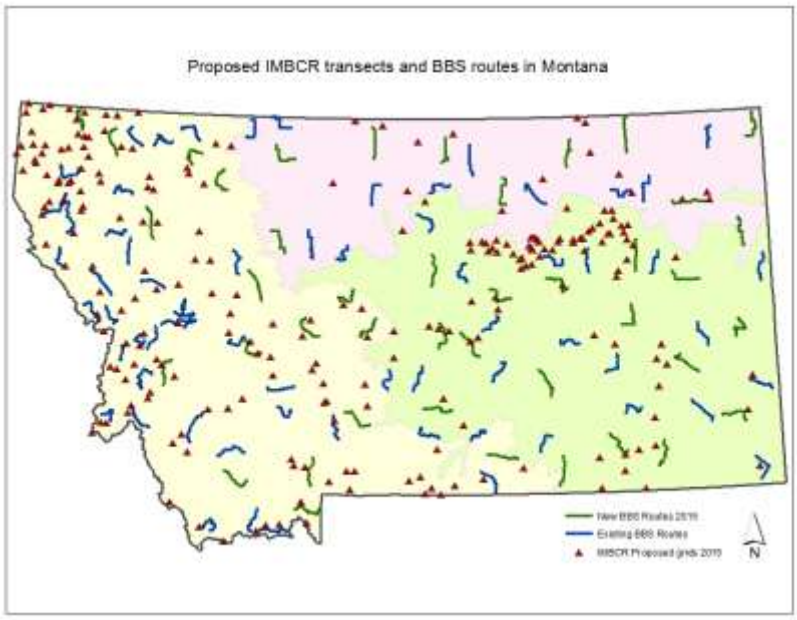


Figure 31. Overlay of the various large-scale bird monitoring efforts including Breeding Bird Survey routes and Integrated Monitoring at Bird Conservation Region surveys.

Species Restoration

Trumpeter Swan

In 2002, the Pacific Flyway Council issued its *Rocky Mountain Population Trumpeter Swan Implementation Plan (TSIP)* that includes a goal to increase the number of breeding pairs of trumpeter swans in suitable habitats. Within the U.S. portion of the Rocky Mountain Population of trumpeters numbers are in continual decline. State wildlife management agencies in Montana, Wyoming, and Idaho agreed that increased efforts to restore these birds was needed and agreed to work together to develop suitable breeding areas and partnerships to implement TSIP restoration efforts. These efforts are to include releasing trumpeter swans into suitable sites. In Montana specifically, the objectives of this work are to: (1) restore breeding trumpeter swans to their historic breeding range in the Upper Missouri watershed, (2) release five birds annually, with the goal of establishing a breeding flock of five nesting pairs within a 5-10-year time frame, (3) encourage other swans to select the middle Madison as a nesting location, (4) increase the geographic extent of the Montana trumpeter swan flock and connect areas in MT, ID, WY and Yellowstone National Park, and (5) engage the community in swan conservation and encourage reporting of trumpeter swan observations and marked birds.

2017 was the 6th year of swan releases in the Madison Valley which has been extensively coordinated with other swan restoration projects in Idaho, Wyoming and elsewhere in MT (Blackfoot and Flathead Valleys). To date numerous birds are using the O'Dell wetland complex throughout the year and it appears that released birds are acting as decoys and attracting unmarked adults to the wetland complex. On occasion, 30-50 trumpeters (marked and unmarked) have been observed near the restoration area during the winter months. While we have no known nests documented within the valley, one marked bird (released as a cygnet in 2012) returned in the spring of 2016 with a partner and two gray yearlings. Additionally, birds are starting to pair up in spring and approximately 10 birds are utilizing the northern part of the valley in early summer. More extensive monitoring to determine nesting attempts and success will be initiated in the summer of 2018.

One goal of this work is to engage the community and encourage reporting of trumpeter swans in the valley. A five-year status report was produced in 2017 along with a tri-fold document which was prepared to outline the work and recognize the donors; more than 300 copies have been distributed to Madison valley residents, local birding groups and interested citizens at the MFWP Region 3 office. The document will be revised in 2018.

Other outreach includes the MFWP Region 3 Facebook page with over 6,100 views of the swan project report. See below link for a Montana Outdoors report:
https://www.bing.com/videos/search?q=montana+outdoor+report+trumpeter+swans+you+tube&&view=detail&mid=B2CBF3B2C6829A6CCB99B2CBF3B2C6829A6CCB99&&FORM=VDRVRV

Figure 32. Collared adult trumpeter swans.

Black-footed Ferrets and Prairie Dogs

Fort Belknap Reservation
Fall 2017: A minimum of 15 ferrets were present. Wildlife Services dusted 895 acres with Delta Dust for sylvatic plague mitigation.

Crow Reservation
Fall 2017: A minimum of 33 ferrets were present, including individuals born in the wild in 2016 (but were missed during surveys) and in 2017. Twenty-two ferrets were released on the Crow Reservation in October of 2017. Wildlife Services dusted 1,162 acres with Delta Dust for sylvatic plague mitigation.

UL Bend / CMR efforts
Fall 2017: Six litters, caught 13/13 kits seen and 4/11 adults identified from late August through early September.

Northern Cheyenne Reservation
The Northern Cheyenne Reservation is actively working toward reintroducing black-footed ferrets once again. Due to annual sylvatic plague mitigation efforts and translocation, prairie dog populations are recovering from the last sylvatic plague outbreak (7 years ago). It is hoped there will be sufficient prairie dog habitat in which to reintroduce ferrets by 2020. Wildlife Services dusted 904 acres with Delta Dust for sylvatic plague mitigation.

Southeast Montana
US Fish and Wildlife Service and MFWP looked at several potential sites for ferret reintroduction. A few sites reviewed from aerial photos and on the ground visits look potentially suitable and may be considered for dust application in 2018. Projects are contingent on landowner support and incentive program availability.

Sylvatic Plague Vaccine Research and Application at UL Bend
Sylvatic plague vaccine (SPV) trials occurred on colonies at UL Bend 2013-2016. Because plague was active in prairie dog colonies during 2016 and because researchers could not show any positive effects of SPV on prairie dog survival based on CMR's 4 years of data, US Fish and Wildlife Service staff decided to live-trap prairie dogs again for a 5th year, to assess the outcome of active epizootic plague during trapping in 2016. The effort in 2017 was limited to trapping prairie dogs on paired research sites (16 days total trapping, mid-July to mid-August), running every prairie dog into a pillow case, reading PIT tags and releasing (no anesthesia or processing). Data analysis pending.

Using a "triple shooter" SPV delivery system attached to an all-terrain vehicle and a multi-rotor unmanned aircraft system designed by the US Fish and Wildlife Service, World Wildlife Fund, and Model Avionics 1,200 acres were treated with SPV on the Locke Ranch complex in August 2016, where all the UL Bend ferrets have been in recent times. The same acres were treated again in August 2017. Another 300 acres were treated on the Hawley complex in August 2017. In September 2017, 210 blood samples were collected from prairie dogs on the Locke complex to assess operational/management scaled SPV treatments and vaccine delivery. Sample analysis pending.

Figure 33. Black-footed ferret. (Photo, US Fish and Wildlife Service)

First Peoples Buffalo Jump State Park

First People's Buffalo Jump State Park in northcentral Montana continues to struggle with their prairie dog concentrations. A draft Environment Assessment for a park management plan was released for public review in October 2016. The draft was circulated to members of the Montana Prairie Dog/Ferret Working Group. Discussions between MFWP Parks Division and Wildlife Division staff during the summer of 2017 highlighted different philosophies on the best removal techniques for prairie dogs at the park. Stephen Vantassel, Montana Dept. of Ag Vertebrate Pest Specialist provided technical guidance and advice to Parks staff. Lethal tube traps were set around specific sensitive areas at the park in the Fall of 2017. No prairie dogs were captured. Any efforts to move prairie dogs from park lands to the American Prairie Reserve are on hold, pending initiation and completion of an environmental assessment.

Landowner Incentive Programs

MFWP, the US Fish and Wildlife Service and partners are still looking for a private landowner interested and/or qualified for the NRCS incentive program and US Fish and Wildlife Service safe harbor. US Fish and Wildlife Service and MFWP have and will continue to request local NRCS offices and the State Conservationist set aside funds for this incentive program. An interested landowner that meets program minimums would likely be more persuasive with NRCS staff.

Conservation Lease Program

The Montana Fish and Wildlife Commission approved a 30-year conservation lease program to willing, eligible landowners who agree to protect native grassland, sagebrush, and wetlands. In exchange for a one-time payment of $15/acre, willing landowners will agree not to convert enrolled grasslands and sagebrush to cropland agriculture, drain natural wetlands, or apply herbicides that are detrimental to native plants for the 30-year contract period. Other traditional land uses, such as grazing, will be allowed. Criteria will vary based on funding source and specific targets but may include:

- Property has adequate habitat for specific wildlife recovery needs, such as 1,500 acres of prairie dog habitat suitable for potential black-footed ferret reintroduction [for targeted Conservation Leases]

There are 7 other criteria listed in the program proposal.

Research

Hoary Marmot Research

The Montana State University graduate student studying hoary marmots, Ben Turnock, wrapped up his project in 2016 publishing his findings in the summer of 2017. Results of genetic analyses to determine the relatedness of marmots in distinct mountain ranges are pending. Ben's full thesis citation: Turnock, B. Y., A. R. Litt, J. M. Vore, and C. A. M. Hammond. 2017. Habitat characteristics of the hoary marmot: assessing distribution limitations in Montana. Ecosphere 8(10): e01977. 10.1002/ecs2.1977. Abstract. Species that live in ecosystems with extremely different seasonal conditions must balance the constraints of each season to survive. Alpine species that do not migrate seasonally are especially adept at balancing the constraints created by short growing seasons and long, harsh winters. We investigated the habitat characteristics of hoary marmots in western Montana to provide a better understanding about habitat selection at the southern extent of this species' distribution. Hoary marmots are an alpine obligate of special concern in western Montana; given that climate change is impacting alpine ecosystems at a rapid rate, this species may be especially vulnerable at the southern edge of their range. We conducted occupancy surveys in three study areas along a latitudinal gradient in 2014 and 2015 to assess the importance of specific habitat characteristics to their presence on the landscape. Slope, aspect, and presence of shrubs were all important habitat characteristics. Marmots preferred shallow slopes and southern aspects, similar to findings from other studies on hoary marmots and other marmot species. Our results provide evidence that marmots may strike a balance between the environmental conditions they require during summer and winter. Shallow slopes typically accumulate deeper snow in winter that provide the best insulating snowpack. However, a preference for southern aspects allows for more snow-free areas in spring, providing a slightly longer growing season than northern aspects. Hoary marmots may be selecting areas with shrubs because shrubs can accumulate deeper snow and the additional insulation can increase subnivian temperatures. Other studies suggest that marmot survival is influenced by snowpack, indicating that marmot distribution may be more closely tied to winter conditions rather than summer conditions. This highlights the difficulty of working on marmots and other alpine obligates, as most studies occur only during the short growing season. Given the current and projected increases in temperature and reduction in snowpack in Montana, areas that provide the winter conditions hoary marmots require may become more limited. Effectively conserving, monitoring, and managing alpine obligates under an uncertain climate future will require a closer look at how winter conditions drive habitat selection and distributions on the landscape.

Figure 34. Predicted occupancy of hoary marmots in western Montana used to evaluate tradeoffs in designing a monitoring program. The boundary lines denote Montana MFWP administrative Regions 1-4.

Songbird Response to Rest Rotation Grazing

The latest published update from graduate student Jessie Golding and Victoria Drietz (University of Montana): Grazing on natural rangelands, which are areas dominated by native vegetation that are used for livestock grazing, can achieve desired vegetation outcomes, preserve native habitat, and economically benefit multiple stakeholders. It is a powerful tool that can be manipulated to reduce wildlife declines and benefit ecosystems. However, the benefits of conservation grazing systems on many wildlife communities remain relatively unexplored. We compared songbird communities between two grazing systems in eastern Montana: rest-rotation, which is a conservation grazing system, and season-long. We measured differences in abundance of eight songbird species over a two-year period using dependent double-observer transect surveys and a multispecies dependent double-observer abundance model. The species were chosen to be representative of the sagebrush grassland community: a sagebrush obligate, Brewer's sparrow; a facultative grassland species, brown-headed cowbird; grassland obligate species, chestnut-collared longspur, horned lark), lark bunting, McCown's longspur, and western meadowlark; and a generalist, vesper sparrow. Our results show that these species exhibit mixed responses to these two grazing systems. The sagebrush obligate (Brewer's sparrow), generalist (vesper sparrow), and two grassland associated species (horned lark and chestnut-collared longspur) were equally abundant on both grazing systems, suggesting grazing system had no effect on their abundance. However, the remainder of the grassland associated species showed a response to grazing: three (brown-headed cowbird, lark bunting, and Western meadowlark) were more abundant in season-long than rest-rotation, whereas one (McCown's longspur) was more abundant in rest-rotation. These results suggest that differences in grazing management affect a subset of grassland obligate species and that only one species, McCown's longspur, preferred conservation grazing. Our findings provide useful information for assessing the suitability of grazing as a conservation tool for songbirds.

Beaver Dispersal and Wetland Habitat Restoration

This project focused on the indirect effects of beaver and the habitats they create. The project mapped areas where beavers are, areas where beaver should be, and areas where beavers will likely never be for MFWP to efficiently and effectively manage for as many biodiversity-rich riparian areas as possible. One of the main goals of this project was to provide a geospatial model that can be used to prioritize areas for beaver restoration and identify areas where restoration may not be an effective tool. The researchers are confident the findings will be a valuable contribution to an increasingly important facet of nongame wildlife management in southwest Montana and similar habitats throughout the Greater Yellowstone Ecosystem, i.e., riparian and wetland habitat maintenance and restoration.

The project gathered valuable information on wetland and riparian habitat dynamics at a broad spatial scale. The data collected can be used to further investigate changes to riparian and wetland areas due to beaver activity and document landscape-level habitat alterations. Findings should provide convincing evidence of the effectiveness and longevity of beaver-mediated riparian habitat restoration. Tracking and monitoring beaver habitats will be an essential component to future habitat management plans that seek to address threats to non-game species due to increasing temperatures, reduced snow pack, and earlier spring run-off. A map of current beaver hot spots that may act as source populations for future beaver reintroductions will be produced.

Torrey Ritter, the Montana State University graduate student on this project was awarded the $5,000 Nongame Checkoff stipend in 2017 for his efforts to emphasize the importance of beavers in wetland restoration and the benefits to nongame species habitats.

Bat Habitat Use

In the fall of 2016 the graduate student working on this project researched and purchased field gear, increased her familiarity with radio telemetry, and researched Montana's forest pests. After determining that mountain pine beetle (MPB) would be the only causal disturbance agent studied in this project, the student began acquiring appropriate geospatial data from various agencies for site selection and discussing this data at length with NRIS, DNRC, USFS, and Montana Natural Heritage Program personnel. Ultimately study sites in the Helena-Lewis and Clark National Forest were selected based on measures of forest health, and logistics of field work.

Between April and late August 2017, the graduate student working on this project finished the first field season of data collection. To address the foraging component of the study, 38 acoustic detectors in lodgepole and ponderosa pine dominated forests with varying degrees of mountain pine beetle (MPB) - caused tree mortality were deployed. Tree and stand-level characteristics were collected and MPB damage severity was quantified within a 50-meter plot at each detector. These data are currently being entered and processed.

Thirty-eight mist-net surveys were conducted in lodgepole dominated forests with the goal of capturing and radio tagging lactating female Myotis to learn about maternity roosting preferences. However, fewer than 10 female bats were captured and none of these individuals met radio tagging criteria (i.e., definitively identified adult Myotis, lactating). This could be because lodgepole pine forests are overall too cold for lactating female Myotis or because these forests were at elevations > 5600 feet with nightly temperatures ranging from -1 to 16 °C.

To address the challenges of capturing female bats, the graduate student and major professor decided to tag male little brown Myotis, in hopes of learning something about Myotis roosting preferences in areas impacted by MPB. Five males were tagged in the Little Belt range and six were tagged in the Boulder Mountains. At least one roost was located for each of eight individuals, with a total of 18 roost locations identified. All roosts were in rock features (i.e., rock outcrops or talus) and many were surrounded by large lodgepole snags. Two radio marked bats were never located after their release, even though a 10-mile radius around the release location was vigorously searched. Many factors could have led to these failed detections including shedding of the transmitter, roost locations in deep rock features, transmitter failure, or large-scale movement. All data is being entered during the fall university semester.

Shannon Hilty, the Montana State University graduate student on this project received the $5,000 Nongame Checkoff stipend in both 2015 and 2016.

Bat Population Monitoring and Disease Surveillance Analysis

White-nose syndrome (WNS) is a fungal disease that has decimated bat communities overwintering in large cave hibernacula in the eastern and central United States. These losses have led directly to the listing of some bat species (including one that has a range extending into Montana) as well as petitions to list others. Almost all of the bat species that overwinter in Montana are known or thought to be susceptible to WNS. Predicting the effects of WNS on bat populations in western states is currently difficult due to the lack of knowledge regarding the ability of the fungus to persist in western microclimates and affect bats overwintering in smaller colonies. Estimating these effects will provide important information for bat conservation and potentially guide ESA listing petitions and decisions.

There is a need to continue assessment of the distribution and status of terrestrial species under-represented in state records and utilize new survey information to support conservation actions and on-going management. Bats in particular are an under-represented group within but over the past five years information has been collected statewide on species presence. The slow but continued westward movement of WNS points to a need to evaluate species information collected to date in the context of a pre-disease environment. Evaluating base populations to inform current species status as well as needs for future species and disease monitoring and conservation action are components of our State Wildlife Action Plan and critical to the conservation of Montana's bat species.

MFWP, USGS, and MSU are partnering on a study to address the following objectives;

- Design a WNS surveillance protocol that accounts for both cave hibernacula and other habitats so we can optimize WNS surveillance efforts to detect the disease, and
- Develop a bat monitoring scheme so that the effects of WNS on bat populations in Montana can be elucidated with future, repeated monitoring efforts once the disease is present.

Identification of Hibernacula Outside of Caves and Mines Across Montana

MFWP is working with the Montana Natural Heritage Program to address the following objectives;

- Identify hibernacula in rock outcrops, badlands and other suitable non-cave/mine landscape features at sites across Montana before WNS reaches the state to inform future surveillance efforts and facilitate future exploration of the role of hibernacula type on WNS impacts and spread.
- Provide information on these hibernacula to land managers and biologists to inform bat conservation activities and assist in site selection for future white-nose syndrome surveillance efforts.

Funding has been secured for 2018 and the work will focus on four capture sites in eastern Montana with a goal to radio mark and track five bats at each site. Pilot efforts to capture bats during late October and November 2017 were unsuccessful. Based on acoustic data from Montana Natural Heritage Program, we focused our efforts on evenings when daytime highs were >10°C. We were able to confirm bat presence during those evenings with an acoustic detector, but unable to capture any bats in mist-nets. We continued efforts by placing acoustic detectors in additional locations to identify more areas with potential winter hibernacula for future efforts.

In MFWP Region 6 biologists captured and radio marked five bats during the summer of 2017 demonstrating the ability to capture and track Myotis species in the habitats of eastern Montana.

Summer mist-netting was conducted on the Buffalo Coulee Conservation Easement. One night of netting resulted in 22 little brown bats (*Myotis lucifugus*; MYLU) being captured, 20 females and two males. Of the 22 captured, five bats were transmitted, two non-reproductive adult males and three adult females; one non-reproductive and two lactating.

Once transmitted, five bats were tracked daily for 12 consecutive days. The nulliparous female (F1) was found every day in the same cottonwood tree. The two lactating females (F2 and F3) were both found in structures, a barn loft and a house's attic. One male (M1) was consistently found in cottonwood trees. M1 switched roosts for the first two days but remained in the third for the next 3 days. M1's transmitter was found on day 6. The second male (M2) was found in a cottonwood tree the first day, but switched to a building (shop), for the remainder of the time. M2 and F3 were only located for seven days and could not be located after that. It is unknown if they moved, but most likely the transmitter's battery died. On day 7, an evening tracking was attempted at the netting location. All bats (excluding M1) were accounted for at the net sight – away from their roosts.

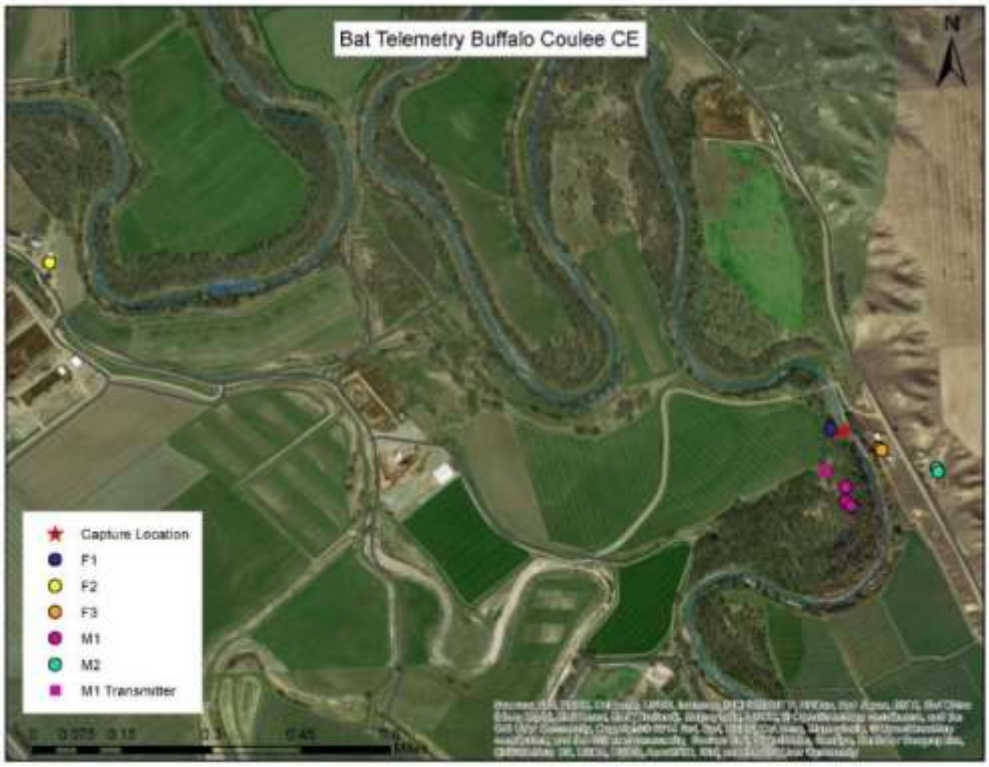


Figure 35. Daily bat locations from MFWP Region 6 telemetry project.

Nongame Disease Monitoring

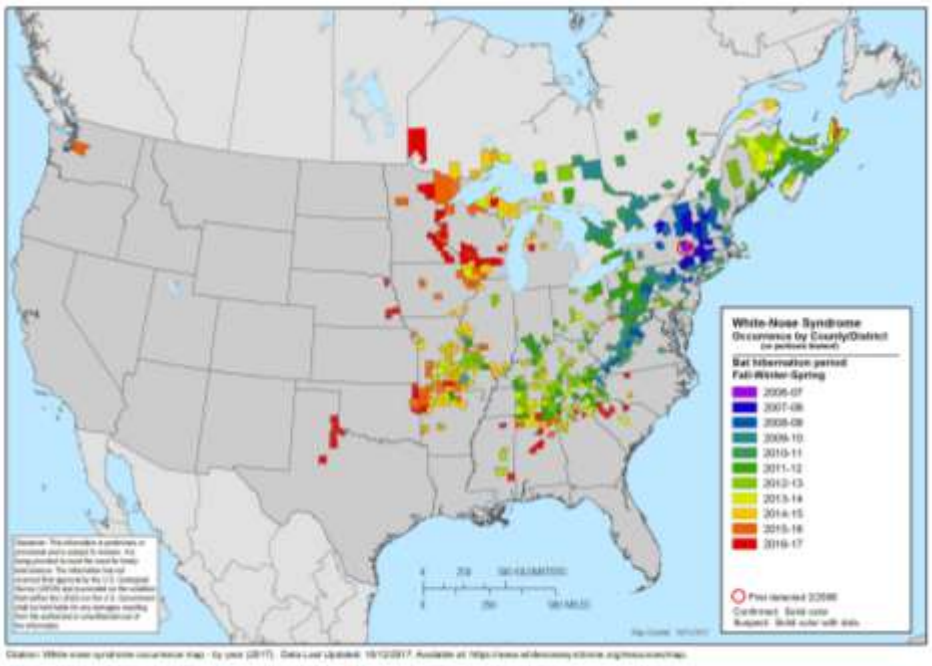
White-nose Syndrome

Bats and sediment from five bat hibernacula were sampled and tested in the late winter of 2017 in search of *Pseudogymnoascus destructans* the fungus that causes white-nose syndrome (WNS). All samples, from bat swabs to sediment in the hibernacula tested negative for Pd. As expected, our largest hibernacula in terms of number of bats remains Azure Cave near Zortman (Figure 36.) Bats were sampled at Libby Dam during spring emergence by Department of Energy staff. All samples were negative.

Based on recommendations of both our MFWP Wildlife Health Lab and the National USGS Wildlife Health Center MFWP will be repeating the sampling efforts that were conducted in 2017. Both the USFS and BLM support continued sampling as well. The fungus that causes WNS is typically detected first from bat swab samples, sometimes a year or two earlier than it is detected in soil or guano samples. In other words, we need to continue to handle and swab bats for the best odds of early detection.

Figure 36. Dropping into Azure Cave for sampling.

Figure 37. White-nose syndrome occurrence map as of October 2017. Note: WNS spread into western states in 2018, https://www.whitenosesyndrome.org.



Education Programs

Working with Teachers, Volunteer Naturalists and Kids

Teachers attended MEA-MFT workshops in Helena and Billings led by R5 staff to learn fun, interactive ways to educate students about bird biology and conservation. Teachers earned a certificate of renewable units for professional development activities.

Biologists across the state visit classrooms throughout the year to educate school kids about the importance of wildlife and conservation. Examples, 1) Helena elementary students learned about bats, birds and animals tracks during the annuals Kids College event and high school students occasionally job shadow with biologist in the field, 2) an annual presentation is given to an MSU agricultural extension program class focusing on living with wildlife. Urban wildlife conflict trainings are provided opportunistically.

Montana WILD established a Master Naturalist Program in 2016. The Avian Conservation Biologist has participated in the planning and development of the course and has used the opportunity to notify newly certified naturalists about the current citizen science opportunities including black swift, chimney swift and black rosy-finch monitoring as well as available Breeding Bird Survey routes. As the Naturalist program develops, there is a desire to incorporate a bird banding component at Spring Meadow State Park. See link for more information: http://www.montananaturalist.org/montana-master-naturalist-course/statewide-courses/

Community Events

Some examples of community events where the nongame species conservation message was spread include the following:

Biologists staffed a booth at Montana Invasive Species day at the capital to distribute information on the invasive species, *Pseudomyces destructans,* the invasive, non-native fungus that causes white-nose syndrome. White-nose syndrome has killed between six and seven million bats in eastern states.

Biologists staffed booths at events such as the Montana Audubon Center for International Migratory Bird Day, the Billings Arbor Day Festival to help educate attendees about the importance of different habitat types for various wildlife species, Camp POSTCARD to teach 5th and 6th graders about bird migration, STEM events for students to learn about bird migration, and annual Earth Day events at Spring Meadow State Park.

A display, activities and biologists were available for evening activities focused on osprey in and around Spring Meadow Park during the annual OutdoorFest. Over 350 people attended this event. See link for more information: http://www.ktvh.com/2017/07/helena-outdoor-festival-draws-hundreds-of-kids-to-spring-meadow.

MFWP Region 6 held a children's event during summer of 2017 at Fort Peck Interpretive Center. The event focused on species of Montana's herpetofauna that could be found in the Fort Peck area. Kids anticipated in hands on monitoring for several species, learned the differences between reptiles and amphibians, the unique characteristics of each species, and how to identify them by sight and sound. They also made make 'toad abodes', clay pots to put around their houses to provide habitat for and hopefully attract toads.

Biologists attended many other events to include monthly Audubon meeting, 'Outdoor Days', rotary meetings, etc. upon request or simply to share information on current work.

Bat walks

'Bat walks' have become popular in some MFWP Regions to get people out at night with acoustic detectors that allow them to 'see' the echolocation calls bats around them are making. Over 200 people participated in MFWP led bat walks at the Montana Audubon Center in Billings where they learned about bat biology and conservation. MFWP staff in other cities across the state also led bat walks and bat field trips to places such as the Flathead River to teach people about bat biology and conservation.

Bat week

Celebrations were held across the state with staff visiting classrooms, holding bat house building workshops, and hosting a bat party to celebrate bats. The idea behind this national event was to educate the public on the important role bats play in our ecosystem and encourage everyone to help protect these important animals.

-Montana kids signed over 250 pledges to build bat houses, conserve energy, never touch a bat, or tell a friend one fact about bats (Figure 38.)
-60 kids and adults attended our bat week party in Helena where they made bat origami, ate bat pollinated foods, learned about bat friendly plants, saw different designs for bat houses, covered themselves in bat tattoos and played an echolocation game.
-Over 175 kids were reached during school programs.
-Over 400 bat pencils, erasers and or 'Bats of Montana' posters were distributed.
-40 'kits' with materials to make bat crafts were distributed to kindergarten students.
-10 families attended a bat box building workshop where 10 multi-chambered boxes were built.

GO TO BAT FOR BATS

You don't have to have special powers or a lot of money to help bats. There are many actions, both great and small, that you can take to help conserve bats and the places where they live–and each action is important.

GO TO BAT FOR BATS - PLEDGE CARD

I, _____
(sign your name above)

pledge to take the following actions to help conserve bats and their habitats.
Commit to take at least three actions!

____ **Learn more about fascinating bats**, the benefits of bats, and the threats they face. Write a bat fact on a paper bat you make and turn it into Fish, Wildlife and Parks for display!

____ **Spread the word** about the value of bats to at least one other person – have them sign a pledge card, too.

____ **Turn off your lights** when they aren't needed. Research shows that bat activity is generally lower in well-lit areas.

____ **Make a poster or write a report** for your classroom on the value of bats.

____ **Dispel the myths.** Tell others that fewer than 1% of all healthy looking bats have rabies.

____ **Promise to never touch a sick or dead bat.** Tell an adult so the bat can be safely removed and the appropriate professionals can gather information that may help other bats.

____ **Host a Bat Week Party!** You can feature bat-themed games, foods and drinks made possible by bats, costumes, or bat house building – anything that highlights our amazing bats!

____ **Build and install a bat house** *(batweek.org has free plans)*.

____ **Keep pets (*especially cats*) indoors.** Cat attacks are one of the most common causes of bat deaths in urban environments.

____ **Create a compost pile.** This will create excellent habitat for insects, which can attract bats.

____ **Plant a native bat garden** that will attract insects that bats like to eat. Examples of bat-friendly plants and shrubs include evening primrose, bergamot, goldenrods, asters, rosemary, lemon balm, lavender, common buttonbush, chives, and mints.

Mail this form back to Montana Fish, Wildlife and Parks (PO Box 200701, Helena, MT 59620) or drop it off at the Montana Wild Education Center near Spring Meadow Park.

Figure 38. Pledge signed by 250 Montana school kids in support of bats.

Wildlife Viewing and Wildlife Appreciation

Wildlife Viewing Platform at Bowdoin National Wildlife Refuge

MFWP Region 6 coordinated with Bowdoin National Wildlife Refuge (NWR) to replace a deteriorating boardwalk and wildlife viewing blind at the Fish and Wildlife Service Pearce Waterfowl Production Area. An interpretive panel was added at the entrance of the ADA approved parking area to provide environmental education. This project provided opportunities to promote wildlife related recreation and resulted in a multiple use feature. Addition of the interpretive panel and relocation of the blind will provide users with an educational outdoor visit.

We coordinated with Bowdoin NWR to help rehabilitate their auto tour route by developing an interpretive overlook parking area. The auto tour route is a self-guided tour on 15-miles of graveled road through Bowdoin NWR. The tour route has interpretive stop areas that provide visitors information about wildlife that inhabit Montana's landscape. The 'Visitor Facility Enhancement' project rehabilitated stop #5 and provided a parking pad, platform and spotting scopes. This area serves as an ideal location to view pelicans nesting on the islands. The lookout has a seacoast telescope that accommodates adults and children. The lookout also is equipped with an interpretive sign, cement picnic table, and parking pad that allows visitors to sit and view wildlife on the refuge. A new interpretive panel aids in fostering an appreciation and understanding of wildlife and plant communities of Montana's prairie pothole region.

Figures 39 and 40. Viewing blind and scope erected at Bowdoin National Wildlife Refuge.

Northwest Montana Wildlife Viewing Area

A collaborative project between MFWP and a Montana land trust will create a public wildlife viewing area northwest of Kalispell. The entire project is within a Tier I aquatic focal area and is critical for migratory waterfowl, shorebirds, raptors, and sandhill cranes. This area supports some of the highest numbers and diversity of wetland birds in the Flathead Valley; 129 species of birds have been documented using the area including tens of thousands of waterfowl, shorebirds, and raptors. This project is especially critical for sandhill cranes which use a 4-square mile staging area including this wetland during their fall migration. Over 400 sandhill cranes have been seen at one time staging in this area which also serves as a night roost site for the birds.

Figure 41. Sandhill cranes during fall migration northwest of Kalispell.

Bird Watching at Spring Meadow State Park

Over 5,000 students participate in bird walks at Spring Meadow State Park with Montana WILD, and as many as 85,000 people visit the park each year. Construction of steps providing additional access to the Park were built to increase safety, decrease the potential for erosion, and to provide access to some of the best birding spots on the lake. Future plans include a construction of a bird viewing platform, educational kiosk and/or the placement of a spotting scope for public use.

Figure 42. New birding trail at Spring Meadow State Park.

Osprey Platform

A boy scout from Troop #677 coordinated with Montana Audubon, MFWP, the Bozeman Raptor Center, North Western Energy biologists and engineers, Bozeman Gallatin Recreation Parks Advisory Board, and the Rotary Club to install a new osprey platform at the East Gallatin Recreation Area in Bozeman. This conservation project contributed to the boy scout receiving his Eagle Scout Service Award and the prestigious Hornaday Medal.

Figure 43. Boy scout and the osprey platform.

Bat Boxes

MFWP Region 6 worked with a local couple from Saco, Montana and WBI energy, to help fund, build and mount bat boxes at 10 locations around Saco. Old buildings were being torn down to clean up the town and bats that had made use of them were being displaced. Bat houses were constructed and placed to provide alternative roosting opportunities. Four of the ten bat house sites had some bat use by summers end in 2017. See below link for a Montana Outdoors report:

https://www.bing.com/videos/search?q=youtube+winston+greely+bat&adlt=strict&view=detail&mid=D0AF0AA6411E7B89D48BD0AF0AA6411E7B89D48B&&FORM=VDRVRV

The Children of the Bozeman Vacation Bible School and a Meadowlark Elementary class coordinated building approximately 50 bat boxes that were distributed this spring to MFWP Region 3 Wildlife Management Areas and some local landowners.

Girl and boy scout troops in MFWP Region 7 built 25 multi-chambered houses in 2016 and in 2017. The nongame specialist then worked with Miles City officials to post bat houses and educational signs around town to promote awareness on the benefits of bats within the community.

Program Scale Efforts

Alliance for America's Fish and Wildlife

NEWS RELEASE WASHINGTON, DC – December 2017 – An unprecedented alliance of government, business, education and conservation leaders have united to provide a solution for one of America's greatest threats—the endangerment of our fish and wildlife. Scientists estimate that one-third of wildlife species in the United States are at risk of becoming threatened or endangered without much needed funding for their conservation.

The Alliance for America's Fish & Wildlife's purpose is to create a 21st-century funding model for critically needed conservation of our nation's most precious natural resources, our fish and wildlife. This effort has expanded out of the strong partnership created by the Blue Ribbon Panel on Sustaining America's Diverse Fish & Wildlife Resources, consisting of members representing the outdoor recreation, retail and manufacturing sector, the energy and automotive industries, private landowners, educational institutions, conservation organizations, sportsmen's groups and state and federal fish and wildlife agencies.

"Each of us, as citizens of this country, has the responsibility to ensure diverse fish and wildlife resources are managed for future generations. Fish and wildlife need healthy habitats to thrive—enhancing our lives and providing many other benefits," stated Johnny Morris, Founder and CEO of Bass Pro Shops. "State fish and wildlife agencies have a solid track record of accomplishing remarkable recovery and restoration successes since the early 1900s. However, enhanced funding is now needed to address today's fish and wildlife habitat management challenges."

The solution to this wildlife challenge is passage of the bipartisan *Recovering America's Wildlife Act,* introduced by Representatives Jeff Fortenberry (R-NE) and Debbie Dingell (D-MI). The bill will redirect $1.3 billion in existing royalties annually from the development of energy and mineral resources on federal lands and waters to conserve the full array of fish and wildlife. This solution will not require taxpayers or businesses to pay more, but instead allows all Americans to become investors in fish and wildlife conservation.

It currently costs the American public hundreds of millions of dollars each year to restore threatened and endangered species, costs that could be avoided or greatly reduced if proactive conservation measures were implemented first. Proactive conservation is good for wildlife, good for taxpayers, good for business and good for our communities. The *Recovering America's Wildlife Act* would provide the needed resources for proactive conservation nationwide.

"Our nation's fish and wildlife are among its most valuable resources, along with clean air, water, healthy forests and agricultural lands that support all of us," stated Virgil Moore, President of the Association of Fish and Wildlife Agencies and Director of Idaho Fish and Game. "Today we find ourselves at a critical crossroads and facing a challenge that could alter our children's and grandchildren's opportunities to enjoy these resources. By investing in our State Wildlife Action Plans, which serves as a blueprint for restoring and managing the most sensitive imperiled species within our state's borders, we will be ensuring future generations can enjoy our rich wildlife heritage."

Not since enactment of the Pittman-Robertson and Dingell-Johnson acts, that provided critical funding for fish and wildlife on the brink of extinction, have we had an opportunity to pass legislation of such importance to protecting what is every American's birthright—our great natural heritage. The *Recovering America's Wildlife Act* is the most important conservation legislation in a generation.

"America's hunters, anglers, recreational shooters, and boaters have been the primary funders of state-based conservation efforts to this day," said Congressional Sportsmen's Foundation President Jeff Crane. "This recommendation simply directs funding for conservation from other sectors that use our natural resources."

Collin O'Mara, President and CEO of the National Wildlife Federation said today, "At a time when one-third of America's fish and wildlife species are at risk, we have a once-in-a-generation opportunity to save thousands of species and ensure that future generations inherit the full diversity of our nation's wildlife." "We thank Representatives Fortenberry and Dingell for introducing the historic Recovering America's Wildlife Act. This bill will help recover thousands of wildlife species through proactive, collaborative, on-the-ground efforts. The approach is unique because it calls for early action to save struggling wildlife, rather than waiting until species are on the brink of extinction. When this bill becomes law, we will increase wildlife populations, strengthen America's economy, and reduce the need for regulatory measures."

A lot is at stake if we do not act soon. Every American benefits when we have healthy and accessible fish and wildlife. We need to start down a new path where we invest proactively in conservation rather than reactively.

Visit OurNatureUSA.com and urge your U.S. Representative to support passage of the *Recovering America's Wildlife Act* so that future generations may enjoy the same abundant fish, wildlife and outdoor recreation opportunities that we have today.

The Nongame Division Bureau Chief is leading efforts for MFWP to stay engaged in efforts to secure new funds through initiatives such as this one.

State Wildlife Grants

The Senate Appropriations Committee released a draft of its FY18 Interior/Environment Funding bill in November. Proposed funding for State and Tribal Wildlife Grants is increased by $1M over the FY17 funding level. The House of Representatives Appropriations Committee had previously recommended level funding and the Administration requested a $16% decrease for the program. This is good news and puts states in a position to potentially squeeze out a small increase for the program for the current fiscal year. Funding for North American Wetland Conservation Act, the Forest Legacy Program and Land and Water Conservation Fund are also higher in the Senate's draft.

Nongame Checkoff Funds

Nongame tax checkoff contributions are often used to match federal funding sources. At least $5,000 are awarded to a Montana graduate student each year exploring a nongame speices related research question and the remaining dollars are used to support habitat restoration, species monitoring, wildlife viewing project, conservation education, and research.

Figure 44. Annual contributions from the Montana Nongame Tax Checkoff.

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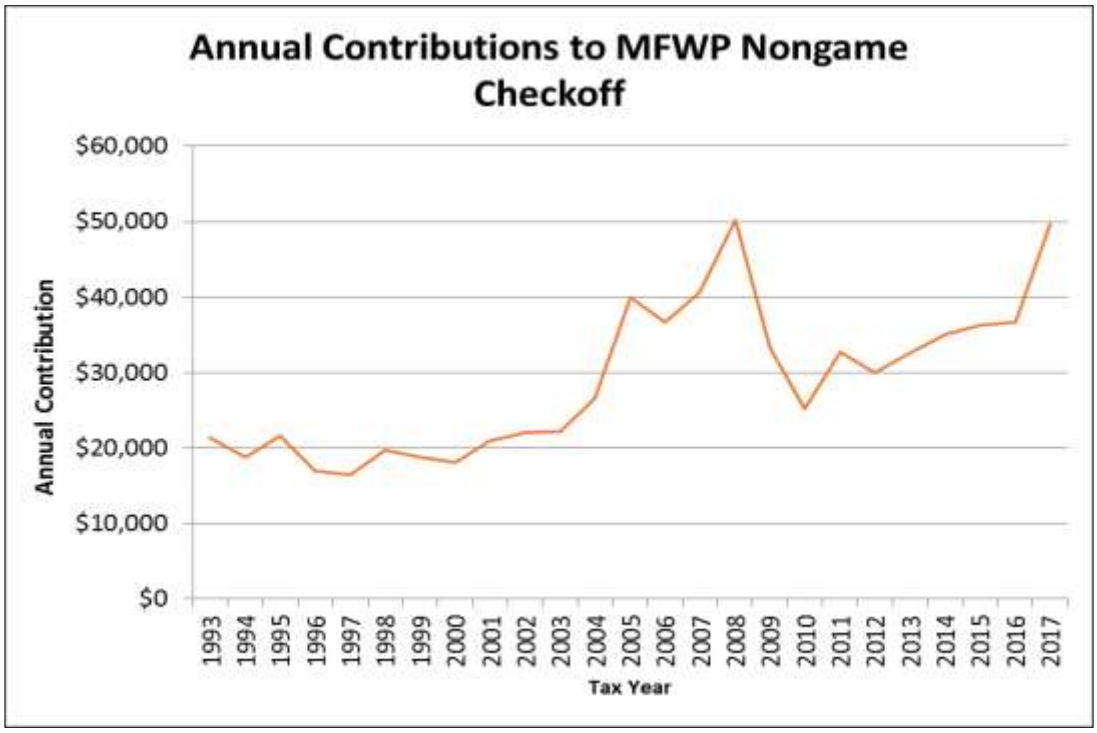

Avian Conservation Biologist

The Avian Conservation Biologist serves to represent Montana (and MFWP) on the Pacific Flyway and Central Flyway Nongame Migratory Bird Technical Committees (TC). Current issues for the Pacific Flyway group include American white pelican flyway monitoring, peregrine falcon harvest, eagles, short-eared owl surveys, migratory pathways, rodenticides, and wetland connectivity. Each of these efforts is at a different state of completion. The Central Flyway TC is currently working on peregrine falcon harvest, changes to MBTA, and depredation orders, eagles, grassland birds, and Bird Banding Lab operations. Both TCs have been working for more than 10 years and continue to work on developing topics of interest in common, and of greatest interest to the States.

The Montana Bird Conservation Partnership did not have a meeting in 2017, but met in 2016 to discuss statewide monitoring, and will meet in 2018 to discuss grassland bird conservation. Updates are being made to the group directory and eventually to the website to increase and improve communication. The group continues to be a popular communication tool for biologists and interested parties to share information on bird conservation in Montana.

Other partnerships and groups that the biologist participates with/in include the Golden Eagle Migration Survey (a local Audubon effort), the Partners in Flight Steering Committee, the Species of Concern committee (with Montana Natural Heritage Program), the Technical Advisory Committee for the Spion Kop wind project, Western Working Group of Partners in Flight, and the Joint ventures.

Technical assistance continues to be a large role for this position for proposed wind projects and coordination with the US Fish and Wildlife Service, the development of a grassland conservation strategy for key grassland birds (US Fish and Wildlife Service), the Master Naturalist Program for the state, habitat management within the department (e.g. development of a fishing access site), and assistance to regional nongame coordinators and the development of survey protocols for Species of Greatest Conservation Need. Additionally, there were efforts to seek and/or provide funding for golden eagle monitoring and grassland bird research and monitoring.

Increasingly, the biologist is working to coordinate with the state universities to coordinate research projects that will advance the research questions with the nongame bureau. Currently, there have been efforts to outline research projects with two professors/post-doctoral students at University of Montana, and with one professor at Montana State University. There will be an effort to develop a regular schedule of coordination with professors at the universities.

In 2017, the Master Banding permit for nongame (USGS, federal) was transferred to the biologist for administration. In January of 2017, with the retirement of Jeff Hagener, duties on the North American Wetlands Conservation Council were passed to the next Pacific Flyway state for representation. The biologist and other nongame program staff remain available to assist with NAWCA grant applications as needed.

Nongame Data Management

Objectives for management of nongame species data were clarified in 2017 to support development of the Survey 123 application managed by the Montana Natural Heritage Program and to inform revision of the MFWP Wildlife Information System.

Objectives of nongame data management statewide:

- Establish appropriate MFWP region databases to collect and store survey and inventory information that is readily accessible by the Montana Heritage Program and our conservation partners.
- Coordinate and work with other MFWP region staff to submit species occurrence records (observation data and incidental non-game sightings) into statewide databases (Tracker and Survey 123)
- Ensure that all data are added to the point observation database and available to MFWP region staff for environmental reviews critical to appropriate planning and development.
- Create/Assist in the making of species identification guide PDF's with pictures and habitat information and have available for MFWP region staff as requested. Species guides can be specified by county, WMA, project area, legislative district, or other geographic areas as shown in Figure 45.

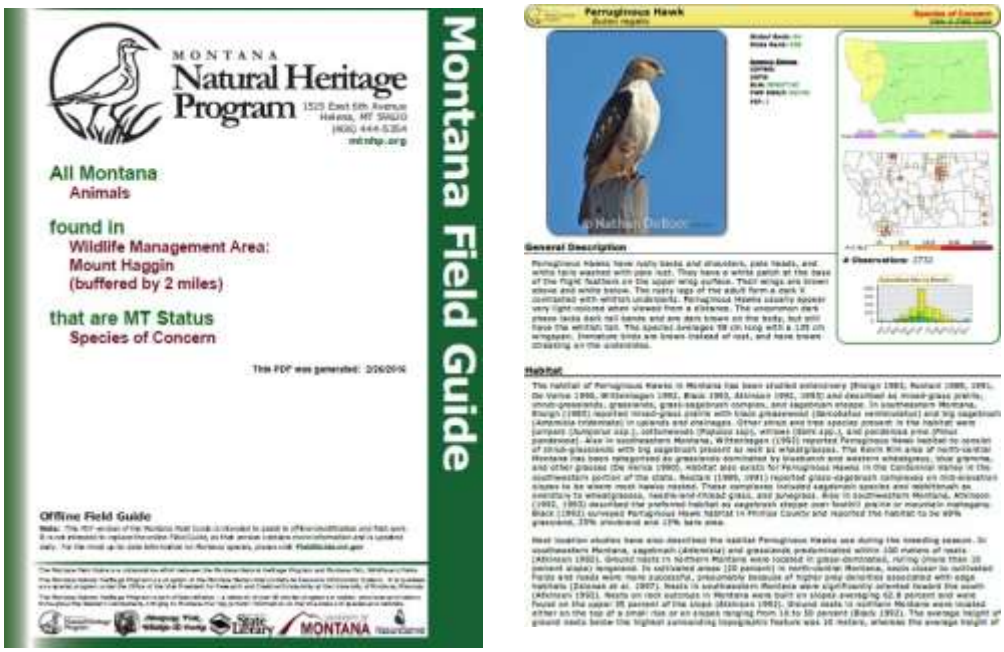

Figure 45. Example pages from a WMA specific field guide produced from the Montana Natural Heritage Program MapViewer tool.