Monitoring Avian Productivity and Survivorship (MAPS) Banding

2024 Season Report

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BACKGROUND

For over three decades, the Monitoring Avian Productivity and Survivorship (MAPS) program has been at the forefront of avian conservation efforts across North America. By focusing on critical metrics such as avian productivity, recruitment, and survival, the program provides invaluable insights into the factors driving bird population declines. This data-driven approach eliminates much of the uncertainty in conservation planning, enabling targeted actions to address specific threats to bird populations.

One of the program's most significant findings underscores the importance of winter habitats and migration routes—integral components of landbird ecology that directly influence reproductive success in subsequent breeding seasons.

The long-term continuity of MAPS data collection allows scientists to uncover trends and patterns that reveal the effects of climate change on bird populations. This includes shifts in phenology, geographic distributions, and survival rates. Such comprehensive data equips land and wildlife managers with the information necessary to adapt management strategies, ensuring the protection of avian species in an era of escalating environmental challenges.

The Jackson Hole Wildlife Foundation (JHWF) is happy to participate in this global initiative. Our care of Teton County's MAPS stations builds on a solid dataset that began in 1991, with the setting up of Station 11114, which was initially overseen by Teton Science Schools (TSS). In the interim, Teton

Raptor Center (TRC) ran these stations from 2016 to 2017. By continuing this important work, we not only contribute to a better knowledge of avian conservation, but we also provide valuable data that influences decision-making and wildlife management in Teton County, Wyoming.

This year marked JHWF's seventh consecutive year managing the MAPS banding program in Teton County, Wyoming. Operating under the master banding permit of Bryan Bedrosian, Conservation Director at TRC, all data collection strictly adhered to the standardized MAPS protocol established by the Institute for Bird Populations.

During the 2024 season, banding activities were conducted at two MAPS stations: the Teton Science School's Kelly Campus station (TSS-) and the Boyles Hill station (JACK), continuing the effort to monitor avian population trends and contribute valuable data to the broader MAPS network.

MAPS BANDING AT KELLY CAMPUS, TETON SCIENCE SCHOOL STATION #11114 (TSS-)

This marked the 33rd consecutive year of operation for the TSS- station, which is one of the longest running MAPS banding stations in the United States.

Banding ran from MAPS Intended Periods 4 through 12 (May 31 to August 28, 2024). The team banded a total of 12 times between May 31 and August 28, making sure to operate the station at least once every seven days. This year's effort resulted in a total of 594 net-hours. We opened nets late on a few cold mornings and closed nets early on occasion for heat and wind but there was no weather-induced cancellation of any full days of banding. We captured 333 individual birds of 44 species (Table 1).

Table 1. A summary of effort and results for the TSS- MAPS station in 2024.

2024 TSS- Station Summary	
Total net hours	594
Total captures	333
Newly banded birds	225
Recaptures	92
Unbanded birds	16
Total Species	44

As Figure 1 illustrates, the 10 most frequently captured species were Yellow Warbler (87), MacGillivray's Warbler (49), Song Sparrow (39), American Robin (29), Gray Catbird (25), Pine Siskin (23), Swainson's Thrush (22), Warbling Vireo (18), Ruby-crowned Kinglet (15), Dusky Flycatcher (13) and Green-tailed Towhee (13).

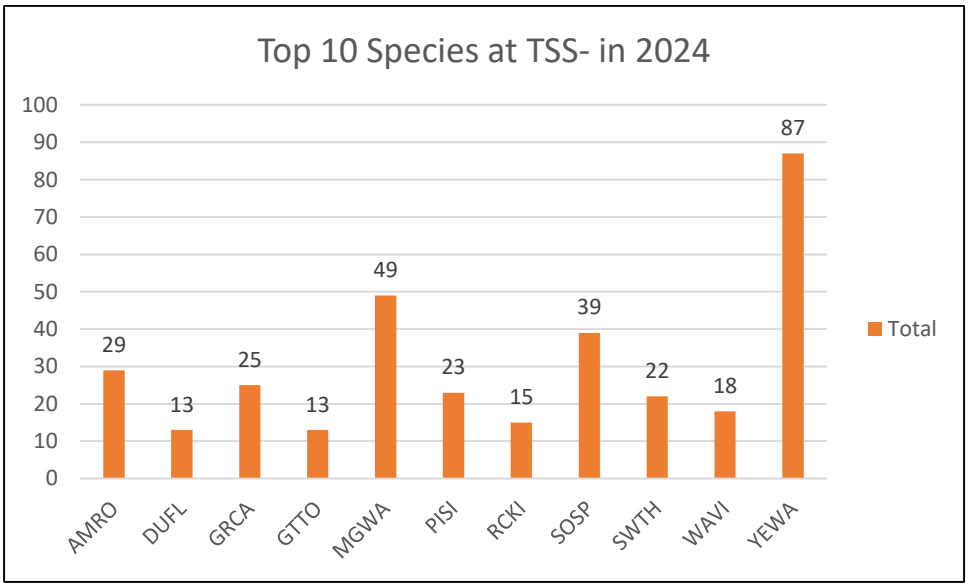


Figure 1. The 10 most frequently captured species at the TSS- MAPS banding station in 2024.

Interesting captures from 2024 include a Flicker Intergrade—a hybrid resulting from the interbreeding of Red-shafted and Yellow-shafted Northern Flickers. A complete list of species, including newly banded birds, recaptures, and unbanded birds, is available in Table 2 on the next page.

Table 2. A summary of banding data using the ALPHA Code, including newly banded, recaptured, and unbanded birds caught at the Teton Science Schools – Kelly Campus station (TSS-) in 2024.

TSS- New	
Species	**# of Birds**
AGOL	1
AMRO	22
AUWA	9
BCCH	4
BHCO	2
BHGR	3
BRSP	5
CEDW	7
DOWO	1
DUFL	11
FOSP	3
GRCA	12
GTTO	11
HAFL	1
NHWR	8
LISP	6
MGWA	37
MOCH	6
MWCS	2
NAWA	1
NFIN	1
NOWA	1
OCWA	5
OSFL	2
PISI	22
PSJU	6
RCKI	12
RNSA	5
RSFL	2
SOSP	16
SWTH	11
TRES	1
UNEM	1
VGSW	1
WAVI	13
WCSP	3

TSS- New cont'd.	
Species	**# of Birds**
WETA	6
WIFL	8
WIWA	9
YEWA	58

TSS- Recaptures	
Species	**# of Birds**
AMRO	6
AUWA	1
BHGR	1
CEDW	2
DUFL	1
GRCA	13
NHWR	2
LISP	1
MGWA	10
MOCH	2
PSJU	1
RCKI	2
RNSA	2
SOSP	21
SWTH	10
WAVI	4
WIFL	2
YEWA	25

TSS- Unbanded	
Species	**# of Birds**
AMRO	1
BCHU	3
BRSP	1
BTHU	4
CAHU	9
DUFL	1
GTTO	2
NHWR	1
MGWA	2
OCWA	1
PISI	1
PSJU	1
RCKI	1
RUHU	11
SOSP	2
SWTH	1
WAVI	1
WIWA	2
YEWA	4

MAPS BANDING AT BOYLES HILL, JACKSON STATION #11235 (JACK)

This marked the 20th year of operation for the JACK station.

Banding operations took place during MAPS Intended Periods 4 through 12, spanning from May 31 to August 28, 2024. Over this period, the team conducted 12 banding sessions between June 7 and August 23, adhering to the requirement of operating the station at least once every seven days. This year's effort totaled 542.33 net-hours of data collection.

Cold temperatures caused delays in net openings on several occasions, and one full day of banding was canceled due to human illness. To ensure compliance with protocol, the missed session was promptly rescheduled within the appropriate banding period. Despite these challenges, a total of 495 individual birds, representing 45 species, were captured over the course of the season (Table 3).

Table 3. A summary of effort and results for the JACK MAPS station in 2024

2024 JACK Station Summary	
Total net hours	542.33
Total captures	495
Newly banded birds	361
Recaptures	97
Unbanded birds	37
Total Species	45

The most frequently captured species in 2024 included Yellow Warbler (176), American Robin (45), Song Sparrow (34), Cedar Waxwing (29), Black-capped Chickadee (22), Northern House Wren (18), Bullock's Oriole (16), Gray Catbird (13), Black-headed Grosbeak (13), and Warbling Vireo (13), as depicted in Figure 2 on the next page. Notably, the House Wren underwent a taxonomic reclassification in 2024, splitting into multiple species, including the Northern House Wren (NHWR) and the Southern House Wren.

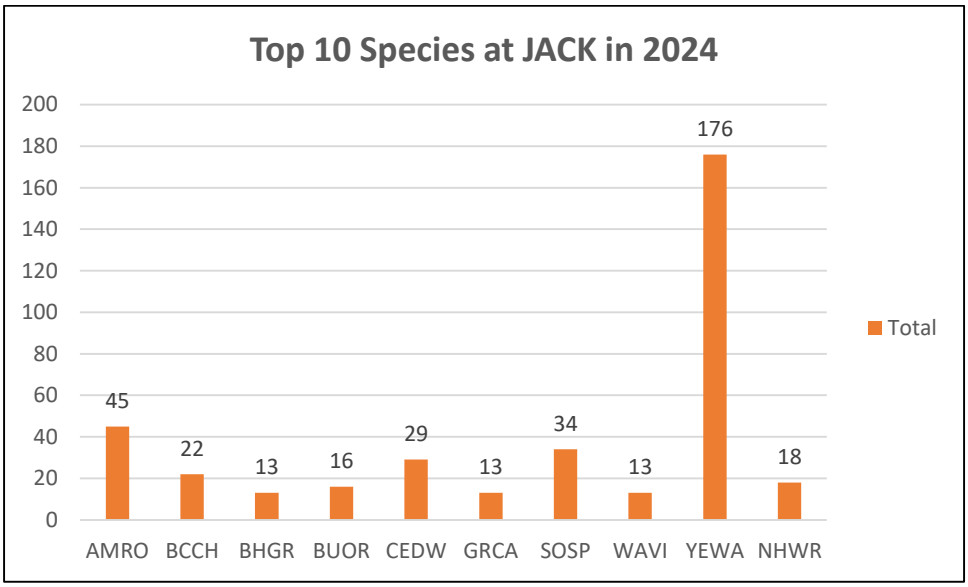


Figure 2. The most frequently captured species at the JACK MAPS banding station in 2024.

An Ovenbird (Figure 3), an uncommon species for Teton County, Wyoming, was among the season's most remarkable captures. Additionally, the high number of young birds captured, particularly during Period 11, was a significant observation.

Figure 3. An after-hatch-year female Ovenbird (Seiurus aurocapilla) was captured at our TSS- MAPS banding station in 2024.

A full list of species including newly banded birds, recaptures, and unbanded birds can be found in Table 4 on the next page.

Table 4. A summary of banding data using the ALPHA Code, including newly banded, recaptured, and unbanded birds caught at the Teton Science Schools – Boyles Hill station (JACK) in 2024.

JACK New	
Species	**# of Birds**
AGOL	3
AMRO	31
AUWA	2
BBMA	2
BCCH	14
BHCO	4
BHGR	10
BRCR	1
BRSP	1
BUOR	15
CEDW	28
CHSP	10
COGR	1
DUFL	3
EVGR	1
GRCA	6
GTTO	2
HAWO	2
HOFI	1
LISP	1
MGWA	4
MOCH	1
NHWR	12
NRWS	1
OCWA	1
OVEN	1
PISI	2
RCKI	6
RNSA	4
RSFL	5
RWBL	1
SOSP	18
SWTH	6
WAVI	12
WBNU	4
WCSP	1

JACK New cont'd.	
Species	**# of Birds**
WETA	6
WEWP	4
WIFL	1
WIWA	3
YEWA	130

JACK Recaptures	
Species	**# of Birds**
AMGO	1
AMRO	10
BCCH	8
BHGR	3
BUOR	1
CEDW	1
CHSP	1
DUFL	4
GRCA	7
NHWR	5
RCKI	1
SOSP	15
WAVI	1
WEWP	3
YEWA	36

JACK Unbanded	
Species	**# of Birds**
AMRO	4
BCHU	1
BTHU	5
CAHU	12
NHWR	1
RUHU	2
SOSP	1
WIWA	1
YEWA	10

Volunteer and Visitor Engagement

We were fortunate to have the assistance of seven dedicated volunteers and one intern throughout the season. This summer, we also engaged 63 visitors at the banding station as part of our education and outreach efforts. We are thrilled to see visitation continuing and are eager to continue expanding these opportunities. A visit to a banding station can be a profoundly impactful experience, particularly for children, inspiring a lifelong appreciation for wildlife and conservation (Figure 4).

Figure 4. Inspiring Moments: The 2024 MAPS banding stations welcomed an enthusiastic mix of visitors, offering unforgettable experiences and a closer connection to wildlife conservation in action.

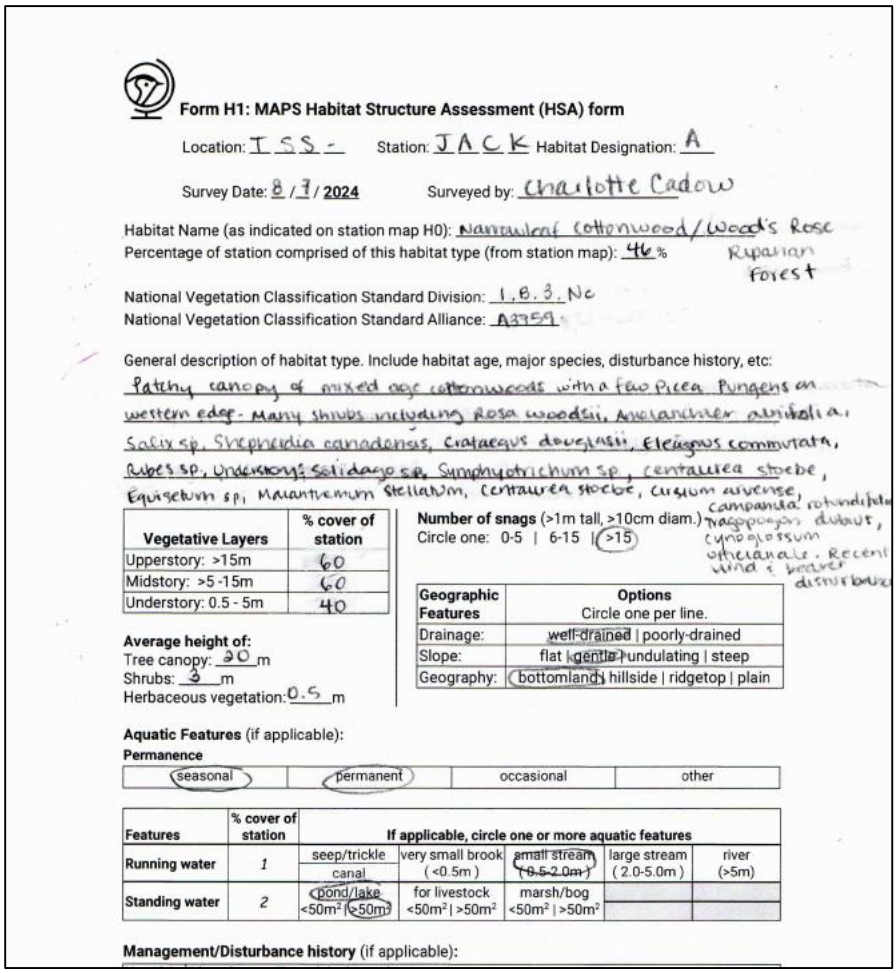
Habitat Structure Assessment at the JACK station

In 2024, we also conducted a five-year Habitat Structure Assessment (HSA) at the JACK station following the guidelines set by the Institute for Bird Populations (IBP). The HSA protocol aims to outline the horizontal and vertical characteristics of the habitat types present at a MAPS station. Its goal is to describe the arrangement and coverage of up to five (although typically only two) identifiable and recognizable habitat types at the station, as well as the distribution and coverage of the various vertical layers within those habitat types.

The maps and descriptions that make up an HSA serve several purposes: a) to deliver a general classification and description of the habitat within the study area, enabling broad comparisons and categorizations among different stations; b) to establish a method for tracking significant changes in vegetation resulting from natural successional processes, new management practices (such as logging, grazing, or development), or major events like fires or floods; and c) to provide a relatively quick assessment of habitat structure and the spatial distribution of vegetation.

Once the assessment outcomes are analyzed, IBP will categorize stations based on characteristics that a particular target species may react to. Subsequently, by utilizing remotely sensed imagery and validated vegetation maps, they will investigate the landscape-level spatial habitat patterns related to stations within a 10 km radius of those groups. Through this approach, we aim to identify landscape patterns associated with elevated population numbers and productivity metrics for the target species. This will enable us to suggest management strategies to replicate similar spatial habitat patterns in regions that exhibit lower population density and productivity. The integration of monitoring demographic data, ecological modeling, population modeling, and management actions provides a basis for an adaptive management framework at either the community or ecosystem level.

We are grateful to our colleague Charlotte Cadow, a Community Science Specialist at The Nature Conservancy-Wyoming, for sharing her botany expertise with the JHWF team and contributing to a comprehensive and accurate HSA for the JACK station this year.



Form H1: MAPS Habitat Structure Assessment (HSA) form

Location: I S S - Station: J A C K Habitat Designation: A

Survey Date: 8 / 7 / 2024 Surveyed by: Charlotte Cadow

Habitat Name (as indicated on station map H0): Narrowleaf cottonwood/Wood's Rose Riparian Forest

Percentage of station comprised of this habitat type (from station map): 46 %

National Vegetation Classification Standard Division: 1.B.3.Nc

National Vegetation Classification Standard Alliance: A3759

General description of habitat type. Include habitat age, major species, disturbance history, etc:

Patchy canopy of mixed age cottonwoods with a few Picea Pungens on western edge. Many shrubs including Rosa woodsii, Amelanchier alnifolia, Salix sp. Shepherdia canadensis, Crataegus douglasii, Elaeagnus commutata, Ribes sp., Understory: Solidago sp. Symphyotrichum sp., centaurea stoebe, Equisetum sp, Maianthemum stellatum, Centaurea stoebe, Cirsium arvense, campanula rotundifolia, Taraxacum dubium, cynoglossum officinale. Recent wind + beaver disturbance

Vegetative Layers	% cover of station
Upperstory: >15m	60
Midstory: >5 -15m	60
Understory: 0.5 - 5m	40

Number of snags (>1m tall, >10cm diam.)
Circle one: 0-5 | 6-15 | (>15)

Average height of:
Tree canopy: 30 m
Shrubs: 3 m
Herbaceous vegetation: 0.5 m

Geographic Features	Options Circle one per line.
Drainage:	well-drained | poorly-drained
Slope:	flat | gentle | undulating | steep
Geography:	(bottomland) | hillside | ridgetop | plain

Aquatic Features (if applicable):

Permanence

seasonal	permanent	occasional	other
(seasonal)	(permanent)		

Features	% cover of station	If applicable, circle one or more aquatic features				
Running water	1	seep/trickle canal	very small brook (<0.5m)	small stream (0.5-2.0m)	large stream (2.0-5.0m)	river (>5m)
Standing water	2	pond/lake <50m² (>50m²)	for livestock <50m² | >50m²	marsh/bog <50m² | >50m²		

Management/Disturbance history (if applicable):

Figure 5: a snippet from this year's HSA paperwork for the JACK station

CONCLUSION

Our MAPS banding sites remain a critical source of valuable data, offering deeper insights into migratory bird populations. Although this year we extended our banding season by two weeks compared to previous years, this modification did not result in a significant overall increase in captures. However, it did yield a notable rise in juvenile captures during the extended period. After consulting with a MAPS program specialist, we have determined that further extension of the banding season is unnecessary for future years. As a result, we will revert to a 10-week banding season for the summer of 2025.

ACKNOWLEDGEMENTS

The Jackson Hole Wildlife Foundation extends our gratitude to our dedicated staff, bird banders, intern, and partners from the Bridger-Teton National Forest, Grand Teton National Park, and Teton Raptor Center. Their expertise, guidance, and unwavering commitment have been essential to advancing our understanding of bird populations.