

Monitoring Avian Productivity and Survivorship (MAPS) at Madrona Farm 2015



Young male Anna's Hummingbird male growing iridescent head feathers – Liam Singh



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Summary

2015 marked our 5th consecutive year running the Monitoring Avian Productivity and Survivorship (MAPS) program at Madrona Farm, located at 4317 Blenkinsop Rd in Victoria, BC. Birds were caught using mist nets and banded; as well, observations of birds seen or heard during breeding season were recorded under the most recently updated MAPS Protocol (DeSante et al, 2015) developed by the Institute for Bird Populations (IBP). Sampling was conducted between June 3rd and August 5th (MAPS periods 4 to 10), resulting in the site being sampled 7 times – once in each 10-day MAPS period.

During this time period, 409 individuals of 38 species were banded, with 51 birds recaptured. The top three species banded were Orange-crowned Warbler (53), Anna's Hummingbird (47), and House Finch (42). Species' breeding status was determined by observing advanced breeding condition of individuals while in the hand, by location of active nests, and by the formulae prescribed by the IBP. Concurrently with banding procedures, 78 species in various breeding conditions were observed on site during the program length

Background

The Monitoring Avian Productivity and Survivorship (MAPS) Program is managed by the Institute for Bird Populations (IBP) in California to assess and monitor the vital rates and population dynamics of North American landbirds. Each summer dedicated field researchers operate bird-banding stations to collect data on individual “birds-in-the-hand” representing over 200 species.

The MAPS program utilizes constant-effort mist netting and banding at a continent-wide network of monitoring stations. Analyses of MAPS data provide critical information relating to the ecology, conservation, and management of North American landbird populations and the factors responsible for changes in their populations.

Rocky Point Bird Observatory operated two MAPS stations in 2015: one at Madrona Farm in Victoria, BC and one at Witty's Lagoon Regional Park in Metchosin, BC. A map of the Madrona Farm study area is shown in Figure 1.



Figure 1. Map of the Madrona Farm (MAFA) MAPS site

Methods

The purpose of the MAPS project is to inventory the breeding songbird populations using standardized methodology, and to record sightings of other species occurring at these locations to facilitate comparisons of populations and avian diversity at the site with those in similar habitats across North America. The data is submitted to both Environment Canada (banding) and to the Institute of Bird Populations (banding, observation, breeding status, and habitat structure) to be made available to researchers and others.

The methodology followed the MAPS 2015 protocol by which songbirds are captured in mist nets and banded during standardized sampling sessions. The sampling sessions were conducted once in every ten day period from the end of May to the first ten days of August. The safe handling and banding of birds followed the applicable sections of the Rocky Point Bird Observatory's banding protocol (RPBO 2008) and the MAPS 2015 protocol. A component of the RPBO protocol is the Banders' Code of Ethics developed by the North American Banding Council, which emphasizes bird safety over data collection. Each sampling session involved using ten mist nets (12m x 2.8m, with a 30mm mesh size) for a six-hour period commencing at dawn. Nets were closed in poor weather with

winds exceeding 15 km/h or significant precipitation, and were checked every 30 minutes or more frequently if weather conditions warranted. Captured birds were removed from the nets and taken to a central location for processing. Each bird was then identified to species, assigned an age class according to criteria compiled by Pyle (1997) and banded with an aluminum U.S. Fish and Wildlife leg band with a unique nine-digit number. From each bird, a series of morphometric measurements was collected including wing chord, stage of breeding development, amount of fat deposit, age of each feather tract, feather wear and mass. Sex and age were determined according to criteria in the MAPS 2015 protocol. Date, time and capture-net code were also recorded. Once processed, birds were released near their capture site to facilitate regrouping of family units.

Results

2015 marked the 5th season of MAPS at Madrona Farm (MAFA), and seven days of banding were conducted at the site (Table 1). Nets never needed to be closed during either rainy or windy conditions, resulting in a total of 420 net hours for the season.

Table 1. Daily summary of effort and captures at the Madrona Farm (MAFA) MAPS site.

DATE	New Bands	Recaptures	Unbanded	Grand Total	Net Hours	New captures per net hour
June 3 rd , 2015	86	8	5	99	60	1.43
June 16 th , 2015	49	8	1	58	60	0.82
June 27 th , 2015	60	7	0	67	60	1.00
July 4 th , 2015	48	13	1	62	60	0.78
July 11 th , 2015	61	9	2	72	60	1.02
July 27 th , 2015	49	5	0	54	60	0.82
August 5 th , 2015	56	1	3	60	60	0.93
Grand Total	409	50	12	472	420	0.97

All birds that were handled were categorized as new bands, recaptures, or unbanded. As expected, most captures resulted in a new band being applied. A total of 409 new birds of 38 species were captured during this year's efforts and we achieved an average of 0.97 newly banded birds per net hour. All species represented were regularly observed in the area. Table 2 summarizes the captures and categories by species.

Table 2. Summary of captures by species and capture category.

Species	New Band	Recapture	Unbanded	Grand Total
American Goldfinch	3			3
American Robin	34	1		35
Anna's Hummingbird	47		3	50
Barn Swallow	5			5
Bewick's Wren	33	13	2	48
Black-Headed Grosbeak	4			4
Brown Creeper	11	1		12
Bushtit	15	5	1	21
Chestnut-Backed Chickadee	6			6
Cedar Waxwing	1			1
Chipping Sparrow	6			6
Downy Woodpecker	8	2		10
Hairy Woodpecker	1			1
House Finch	43		2	45
House Sparrow	1			1
House Wren	9			9
Hutton's Vireo	1			1
MacGillivray's Warbler	1			1
Northern Flicker	1			1
Northern Rough-winged Swallow	1			1
Orange-Crowned Warbler	53	9	2	64
Oregon Junco	19		2	21
Pacific-Slope Flycatcher	9			9

Puget Sound White-Crowned Sparrow	7	1		8
Purple Finch	5	1		6
Red-Breasted Nuthatch	1			1
Rufous Hummingbird	22	2		24
Song Sparrow	17	15		32
Spotted Towhee	28	1		29
Swainson's Thrush	5			5
Violet-Green Swallow	1			1
Warbling Vireo	1			1
Western Tanager	2			2
Willow Flycatcher	1			1
Wilson's Warbler	6			6
Yellow Warbler	1			1
Totals	409	510	12	472

51 birds were recaptured after initial banding. Recapture of an adult bird more than seven days after original banding is an indicator of the bird on breeding territory. 12 birds were released unbanded, either due to escape, assessment by the handler as being stressed, or lack of appropriate bands on site. Table 3 shows the year of original banding of the birds captured from previous years.

Table 3. Recapture History

Year banded	Recapture count	Highlights
2011	3	3 Orange-crowned Warblers
2012	0	
2013	1	1 Bewick's Wren
2014	15	1 American Robin, 1 Bewick's Wren, 5 Bushtits, 2 Orange-crowned Warblers, 1 Purple Finch, 2 Rufous Hummingbirds, 2 Song Sparrows, 1 Spotted Towhee

Year banded	Recapture count	Highlights
2015	32	11 Bewick's Wren, 1 Brown Creeper, 2 Downy Woodpecker, 4 Orange-crowned Warbler, 13 Song Sparrow, 1 White-crowned Sparrow

During the MAPS project, volunteers observed bird behaviours and located evidence of breeding birds. A bird is considered a breeder at the site if clear evidence, such as a nest or recent fledgling is found, but also if other related behaviours such as territorial singing or carrying food are observed over an extended period. The breeding status is not limited to a single season, but rather is determined by observations over all MAPS periods. Since the start of the MAPS program at Madrona Farm in 2011, 78 species of birds have been observed at the site. Of these, 31 were determined to be breeders, 10 were likely breeders, 35 were transients (in breeding range, but not breeding at the MAPS site) and 2 were migrants (outside of known breeding range). Table 4 shows the cumulative breeding status of species observed at the Madrona Farm site since the beginning of the MAPS program there in 2011.

Table 4. Breeding status of birds observed at the Madrona Farm MAPS site.

American Goldfinch	Breeder	McGillivray's Warbler	Transient
American Robin	Breeder	Merlin	Transient
Anna's Hummingbird	Breeder	Northern Flicker	Breeder
Bald Eagle	Transient	Northwestern Crow	Transient
Barn Swallow	Likely Breeder	Northern Harrier	Migrant
Belted Kingfisher	Transient	Northern Rough-winged Swallow	Transient
Bewick's Wren	Breeder	Olive-sided Flycatcher	Breeder
Black-headed Grosbeak	Breeder	Orange-crowned Warbler	Breeder
Black-throated Gray Warbler	Transient	Pacific Wren	Breeder
Brewers Blackbird	Transient	Pacific-golden Plover	Migrant
Brown Creeper	Breeder	Pacific-Slope Flycatcher	Breeder
Brown-headed Cowbird	Likely Breeder	Pileated Woodpecker	Likely Breeder
Bullocks Oriole	Transient	Pine Siskin	Likely Breeder
Bushtit	Breeder	Purple Finch	Transient
California Quail	Breeder	Purple Martin	Transient
Canada Goose	Transient	Red Crossbill	Transient
Cassin's Vireo	Transient	Red-breasted Nuthatch	Breeder
Cedar Waxwing	Breeder	Red-tailed Hawk	Transient
Chestnut-backed Chickadee	Breeder	Red-winged Blackbird	Transient
Chipping Sparrow	Breeder	Rufous Hummingbird	Breeder
Common Raven	Transient	Song Sparrow	Breeder
Common Yellowthroat	Transient	Spotted Towhee	Breeder
Cooper's Hawk	Transient	Swainson's Thrush	Transient
Dark-eyed Junco	Likely Breeder	Townsend's Warbler	Transient
Downy Woodpecker	Breeder	Traill's Flycatcher	Transient
European Starling	Breeder	Tree Swallow	Transient
Eurasian Collared-dove	Likely Breeder	Turkey Vulture	Transient
Evening Grosbeak	Transient	Violet-green Swallow	Transient
Glaucous-winged Gull	Transient	Warbling Vireo	Transient
Golden-crowned Kinglet	Likely Breeder	Western Wood-Pewee	Breeder
Great Blue Heron	Transient	Western Tanager	Likely Breeder
Hairy Woodpecker	Likely Breeder	Western Flycatcher	Breeder
Hooded Merganser	Transient	White-crowned Sparrow	Breeder
House Finch	Breeder	Willow Flycatcher	Transient

House Wren	Breeder	Wood Duck	Breeder
House Sparrow	Breeder	Wilson's Warbler	Likely Breeder
Hutton's Vireo	Transient	Yellow Warbler	Transient
Killdeer	Transient	Yellow-rumped Warbler	Transient
Mallard	Breeder		

Comments & Recommendations

The 5th year of the MAPS program at Madrona Farm saw 409 new birds banded; this is up from 365 in 2014 and the species diversity was the highest we've ever encountered at the site with 38 species banded. The MAPS protocol advises that a five to ten year period of data collection is required before meaningful analysis can be initiated, but it is clear to see that the MAPS site at Madrona Farm does provide habitat for a wide variety and significant population of breeding birds.

The MAPS program provides an excellent opportunity for new banders and volunteers to improve their skills, and this continued to be true for the 2015 MAPS season. Over the 7 sessions, we had 26 volunteers in total attend, which totaled 214 volunteer hours. The MAPS program is a great introduction to banding for many people, and is often popular because of its central location in Saanich, which does not require volunteers to drive long distances from the city. The results show that the Madrona Farm site is a worthwhile location for the MAPS program. It is recommended that RPBO continue this program, with the permission and cooperation of David and Nathalie Chambers.

Acknowledgements

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In 2015, MAPS monitoring by Rocky Point Bird Observatory was conducted primarily by volunteers including: MAPS coordinator Jo Motek and Volunteer coordinator Ann Scarfe. Rick Schortinghuis was the primary bander-in-charge, with assistance from RPBO intern Rebecca Clarke-Coates. Station setup and monitoring efforts were completed with the volunteer help of Adam Connor, Andrea Neumann, Ann Nightingale, Ann Scarfe, Avery Bartels, Carl Hughes, Cheryl Hoyle, Christina Lam, Elizabeth Riddett, Ivy Doak, James Woods, Jannaca Chick, Jo Motek, Judith Toms, Juniper English, Kosuke Saita, Liam Singh, Margie Shepherd, Mike Motek, Morgan Brown, Serena Johnston, Tesi Carmona, Wallis Reid and Wendy Smith. Just over 382 person hours of field work were completed for the

2015 MAPS season at Madrona Farm and without the donation of hundreds of hours of volunteer effort, the season would not have been possible.

Literature Cited

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