2006 Jefferson Farm Survey for Breeding Birds and Western Gray Squirrels

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Introduction

Jefferson Farm is 388 acre private, rural property in western Marion County, Oregon. For most of the last two decades, the farm has been in commercial grass seed and livestock production. In 2003, Jefferson Farm was sold to a new owner, who since then has begun an ambitious program of ecological restoration across much of the property.

In 2006, the landowner received a Landowner Incentive Program (LIP) grant from the Oregon Department of Fish and Wildlife (ODFW) to support restoration activities on Jefferson Farm. The LIP grant agreement identified 15 priority bird species that could potentially benefit from habitat improvements implemented on the property (Table 1). Several other non-avian wildlife species were also identified in the LIP agreement, including the western gray squirrel, which is listed by ODFW as a "Sensitive-undetermined" species in the state. Restoration activities being conducted with LIP funds include: reducing conifer encroachment in Oregon white oak woodlands, decreasing tree densities to create savanna habitat for rare plants and priority wildlife species, increasing native plant diversity, and controlling invasive weeds.

As part of the LIP grant agreement, the landowner agreed to monitor the occurrence of priority bird species on Jefferson Farm for five years following implementation of habitat restoration. The Oregon Wildlife Institute (OWI) provided donated professional services to design and conduct the monitoring program. The project is providing the OWI an opportunity to assess avian survey methods that will be used in a more extensive 2007 research effort funded by the Pacific Coast Joint Venture.

Table 1.Priority avian species and their federal and state status that potentially may occur on Jefferson Farm, Marion County, Oregon.

Species	Scientific Name	Federal Status	State Status
Acorn woodpecker	*Melanerpes formicivorus*	SOC	
Band-tailed pigeon	*Columba fasciata*	SOC	
Lewis' woodpecker	*Melanerpes lewis*	SOC	SC
White-breasted nuthatch	*Sitta carolinensis*	SOC	
Grasshopper sparrow	*Ammodramus savannarum*		SP
Oregon vesper sparrow	*Pooecetes gramineus affinis*	SOC	SC
Western bluebird	*Sailia mexicana*		SV
Western meadowlark	*Sturnella neglecta*		SC
Streaked horned lark	*Eremophila alpestris strigata*	C	SC
Bald eagle	*Haliaeetus leucocephalus*	LT	LT
Olive-sided flycatcher	*Contopus cooperi*	SOC	
Pileated woodpecker	*Dryocopus pileatus*		SV
Willow flycatcher	*Empidonax traillii brewsteri*		SV
Yellow-billed cuckoo	*Coccyzus americanus*	C	SC
Yellow-breasted chat	*Icteria virens*	SOC	SC

Status Codes: Federal: LT= ESA listed Threatened, C= Candidate for listing, SOC= USFWS Species of Concern; State: LT= listed Threatened, SC= Sensitive-critical, SP= sensitive-peripheral, SV= sensitive-vulnerable.

Survey Methods

Methods of bird observation and data recording generally followed that of the Breeding Bird Atlas program (http://www.bsc-eoc.org/norac/atlascont.htm). Bird observations were performed by the authors during three visits to the survey area on May 20, June 16, and June 30, 2006. Observations were conducted between sunrise and 9:00 am to coincide with the peak of bird activity. We walked throughout each management unit (oak savanna, 45 ac; young & mature oak woodlands, 55 ac; and wet prairie, 9 ac) in a manner most likely to maximize the probability of detecting all diurnal bird species in the unit aurally or visually. For each bird observed, we categorized the likely breeding status based on behavior according to a protocol developed by the Breeding Bird Atlas Program. Three levels of breeding probability are defined: Possible (PO), Probable (PR),

and Confirmed (CO). Appendix I identifies a number of observable behaviors that indicate the probability of breeding. We considered the sum of evidence collected across all three visits to determine breeding status for each species for the 2006 breeding season.

We also were observant for sightings and calls of western gray squirrels while conducting bird surveys.

Results

We detected a total of 45 bird species during the survey; 41 species were determined to be probable or confirmed breeders on Jefferson Farm (Table 2) based on Breeding Bird Atlas protocols. Five of the species we observed were identified by the landowner as being a conservation priority for purposes of the LIP grant. The areas we observed each of the priority species were as follows:

- **Pileated woodpecker**- Observed near the young oak/mixed woodland and conifer interface near the east property boundary. Also at the bottomland hardwood riparian forest area near the south property boundary.
- **Olive-sided flycatcher**- Observed in the young & mature oak woodland.
- **Willow flycatcher**- Observed in openings within the young & mature oak woodland.
- **White-breasted nuthatch**- in the oak savanna management area and young & mature oak woodland.
- **Western bluebird**- a single observation in the fallow field west of the oak savanna management area.

No western gray squirrels were observed during the survey.

Conclusions

We observed five of the 15 species identified by the landowner as having conservation priority in the LIP grant agreement. Our survey likely detected all species that were breeding on the property, although we may have missed some species that only foraged (e.g., accipiters), roosted (e.g., crows, owls) or dispersed across the property. Because the management units are small relative to the territory size of most bird species, it is difficult to assess the effect of each management unit individually on bird community composition. Many species likely are responding to the collective suite of habitats available at Jefferson

Farm, as well as being influenced by habitats and management activities on adjacent properties.

Our frequent observations of more common prairie- and savanna-associated birds (e.g., savanna sparrow, white-crowned sparrow, lazuli bunting) in the wet prairies and oak savanna management unit suggest that these areas are functioning as open, grassland habitats, as the landowner intended. The oak savanna management area appears to be providing nesting habitat for savanna and open woodland species, such as white-breasted nuthatch and northern oriole. However, competition with European starlings for nest sites may be limiting nest success of native cavity-nesting species.

Table 2. Observed bird species and their breeding status in 2006. Priority species indicated in **bold** typeface.

Common Name	2006 Breeding Status
Red-tailed hawk	CO
California quail	PR
Killdeer	CO
Spotted sandpiper	PO
Mourning dove	PR
Rufous hummingbird	PR
Downy woodpecker	PR
Hairy woodpecker	PR
Northern flicker	PR
Pileated woodpecker	PR
Olive-sided flycatcher	PR
Western wood-pewee	PR
Willow flycatcher	PR
Barn swallow	PO
Violet-green swallow	PR
Tree swallow	PR
Cliff Swallow	PO
Steller's jay	PR
Scrub jay	PR
Black-capped chickadee	PR
White-breasted nuthatch	PR
Brown creeper	PR
House wren	CO
Bewick's wren	PR
Western bluebird	PO
Swainson's thrush	PR
American robin	CO
Cedar waxwing	PR
European starling	CO
Hutton's vireo	PR
Orange-crowned warbler	CO
Common yellowthroat	PR
Western tanager	PR
Black-headed grosbeak	PR
Lazuli bunting	PR
Spotted towhee	PR
Savanna sparrow	PR
Song sparrow	PR
White-crowned sparrow	PR
Dark-eyed junco	PR
Brown-headed cowbird	PR
Red-wing blackbird	PR
Northern oriole	PR
Purple finch	PR
American goldfinch	PR

Breeding status codes: CO= confirmed breeding; PO= possible breeding; PR= probable breeding.

Appendix I Breeding Codes

There are three breeding categories defined under Breeding Bird Atlas Protocols (http://www.bsc-eoc.org/norac/atlascont.htm): Possible (PO), Probable (PR), and Confirmed (CO). Within each of these categories are descriptive behaviors that indicate the likelihood of breeding occurrence. These codes are listed here and on the Field Card in order of increasing certainty.

POSSIBLE BREEDING - Enter behavior code "X" in the "PO" column of the Field Card.

X Species observed in breeding season in possible nesting habitat, but no other indication of breeding noted. Singing male(s) present (or breeding calls heard) in breeding season.

PROBABLE BREEDING - Enter appropriate behavior code in the "PR" column of the Field Card.

S Singing male present (or breeding calls heard) on more than one date in the same place. This is a good indication that a bird has taken up residence if the dates are a week or more apart.

P Pair observed in suitable habitat in breeding season. Pair refers to a male and a female together, not just any two members of the same species. To use this code you must be able to determine that one bird is male and the other is female, because of differences in plumage or size, or pairing must be clearly indicated by the birds' behavior. Two birds of the same species does not make a pair unless there are discernable indications of pairing between them.

T Bird (or pair) apparently holding territory. In addition to territorial singing, chasing of other individuals of same species often marks a territory.

D Courtship and display, agitated behavior or anxiety calls from adults suggesting probable presence nearby of a nest or young; well-developed brood-patch or cloacal protuberance on trapped adult. Includes copulation.

N Visiting probable nest site. Nest building by wrens and woodpeckers. Wrens may build many nests. Woodpeckers although they usually drill only one nest cavity, also drill holes just for roosting.

B Nest building or excavation of a nest hole.

CONFIRMED BREEDING - Enter appropriate behavior code in "CO" column of the Field Card.

DD Distraction display or injury-feigning. Agitated behavior and/or anxiety calls are Probable-D.

UN Used nest found. Caution: These must be carefully identified if they are to be counted as evidence. Some nests (e.g. Baltimore Oriole) are persistent and very
characteristic. Most are difficult to identify correctly.

FE Female with egg in the oviduct (by bird bander).

FL Recently fledged young (including downy young of precocious species - waterfowl, shorebirds). This code should be used with caution for species such as black birds and swallows, which may move some distance soon after fledging. Recently fledged passerines are still dependent on their parents and are fed by them.

ON Adult(s) entering or leaving nest site in circumstances indicating occupied nest. NOT generally used for open nesting birds. It should be used for hole nesters only when a bird enters a hole and remains inside, makes a change-over at a hole, or leaves a hole after having been inside for some time. If you simply see a bird fly into or out of a bush or tree, and do not find a nest, the correct code would be Probable-N.

FS Adult carrying fecal sac.

FY Adult(s) with food for young. Some birds (gulls, terns, and raptors) continue to feed their young long after they are fledged, and even after they have moved
considerable distances. Also, some birds (e.g. terns) may carry food over long distances to their young in a neighboring block. Be especially careful on the edge
of a block. Care should be taken to avoid confusion with courtship feeding (Probable-D).

NE Identifiable nest and eggs, bird setting on nest or egg, identifiable eggshells found beneath nest, or identifiable dead nestling(s). If you find a cowbird egg in a nest, it is NE for Cowbird, and NE for the identified nest's owner.

NY Nest with young. If you find a young cowbird with other young, it is NY for cowbird and NY for identified nest owner.