



**Lewis's Woodpecker Nesting
Research Update
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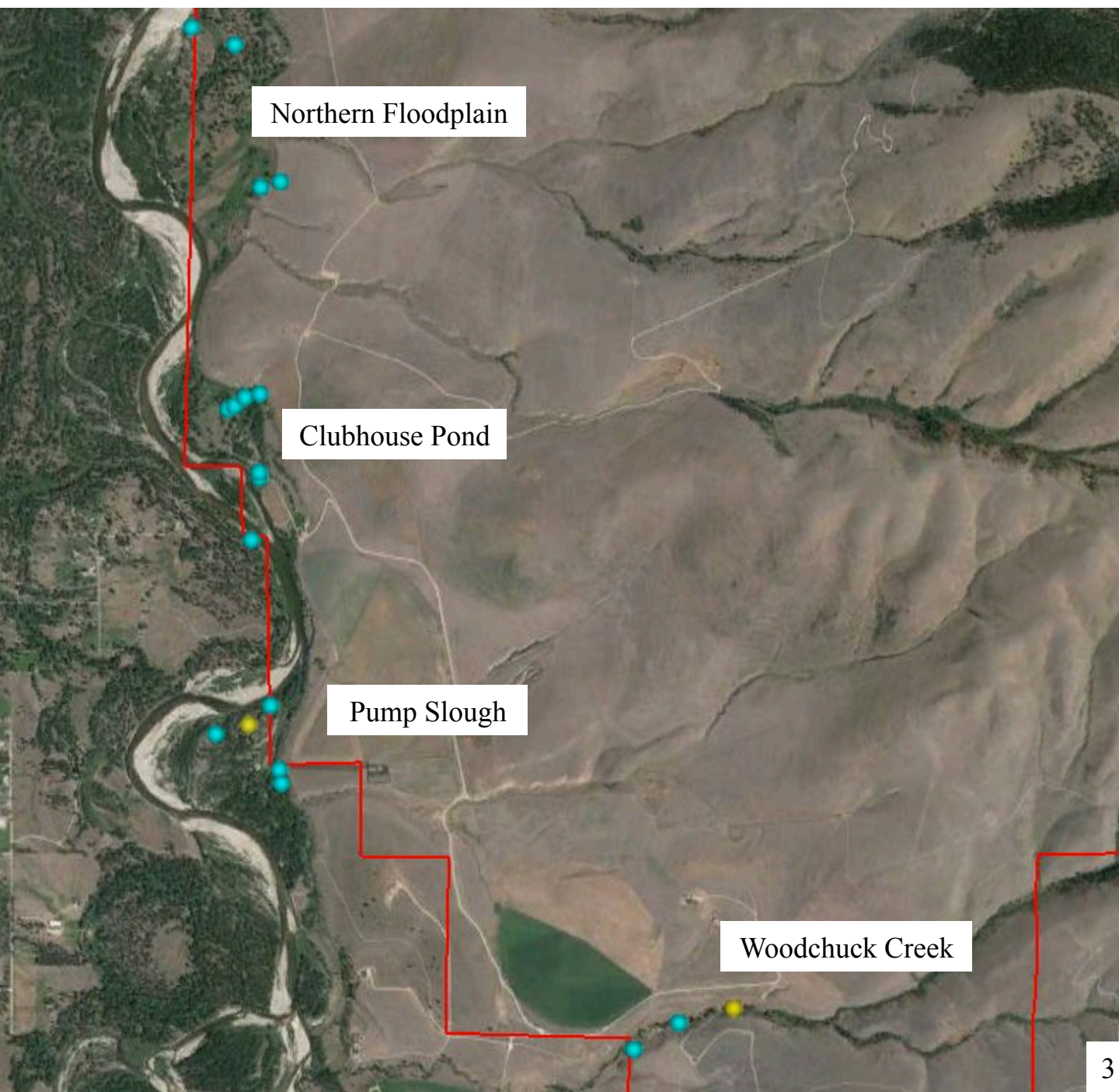
Project summary

This report summarizes 2014 nest monitoring of Lewis's Woodpeckers. We monitored 17 nests throughout the breeding season. We estimated that incubation occurred from 25 May to 17 June. The nestling phase occurred from 8 June to 25 July, and fledging occurred from 10 July to 29 July. All nests that we monitored successfully produced young. All nests occurred in similar riparian habitat; all but 2 occurred within sight of the Bitterroot River. Many woodpeckers nested in areas, trees, or cavities used in previous years. All were within 1000 feet of at least one other Lewis's Woodpecker nest. Several woodpecker pairs shared nest trees with other species. Color marking of individuals will allow us to understand nest-site and mate fidelity in future years.

Sampling Effort

We monitored nests in four areas: Woodchuck Creek, Pump Slough, Clubhouse Pond, and Northern Floodplain. We checked all historic nest areas for evidence of breeding. We discovered new nests by watching woodpecker behavior, following adults to nest trees, and/or listening for the sound of young begging from cavities. The close proximity of nests in some areas made identifying individual nests difficult. We were also limited by high water and area closures for Bald Eagle nesting.

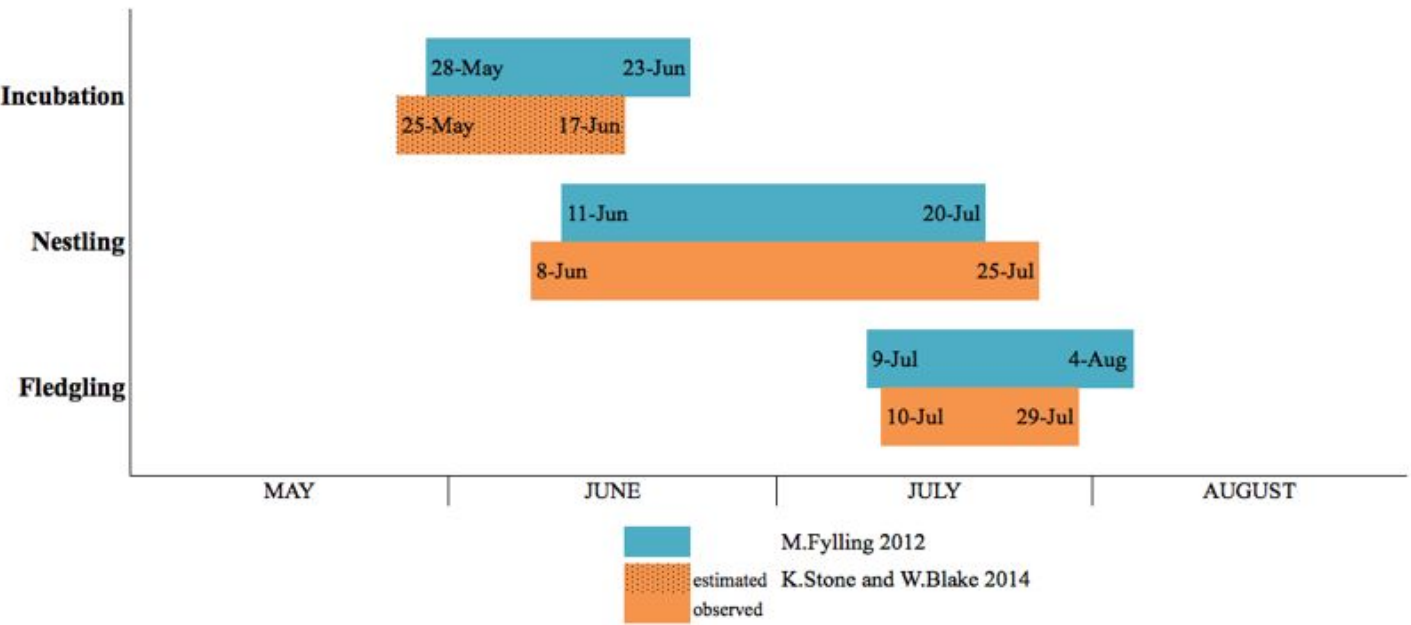
We detected 17 nests (blue). We repeatedly saw adult Lewis's Woodpeckers in two areas but did not see evidence of nesting (yellow).



Nest Phenology

We observed nests in the nestling phase from 8 June to 25 July (Figure 1). Fledging dates ranged from 10 July to 29 July, with most birds fledging in the second and third week of July. Though we did not observe nest initiation and incubation, our fledging dates suggest that nest initiation ranged from approximately 25 May- 17 June, and hatching dates ranged from 8 June to 2 July, based on a 14-day incubation period and 28- to 34-day nestling period. These dates roughly correspond with those found by M. Fylling in 2012.

Figure 1. Lewis’s Woodpecker Breeding Phenology.



We could see four nestlings developing feathers on 26 June.

Nest Success

Of the 17 nests we monitored, 100% successfully fledged young. We saw signs of territorial behavior (e.g., repeated presence of adult woodpeckers in a small area) in two areas without evidence of breeding. We don't know if these areas had nests that failed or if the adults present were not breeding.

The maximum number of young we confirmed in nest cavities was 5. Nestlings near the cavity entrance sometimes obscured our view of other nestlings and limited our ability to count them all. Rather than risk detrimental disturbance to the nesting process, we limited the time spent disturbing each nest and the number of repeated visits. Once young fledged, determining exact number proved difficult. Fledglings often hid in vegetation, and in some cases, fledglings from multiple nests used the same area.



A nestling peeks from its nest cavity



An adult woodpecker accompanies a recent fledgling.

Nesting Habitat

All four nesting areas had similar riparian characteristics, including proximity to water, a high snag density, and a multi-layered structure of mature deciduous and coniferous trees with an understory of shrubs. All nesting areas were close to open plant communities, including gaps in riparian forest, agricultural areas, managed grasslands, and sagebrush. With the exception of Woodchuck Creek, nesting areas were in close proximity to the Bitterroot River.



Clubhouse Pond Area

Nest Characteristics

Woodpeckers most often nested in dead cottonwoods (n=12). They also used live cottonwoods (n=3) and dead ponderosa pines (n=2). Nest trees ranged in diameter-at-breast-height from 19 to 45 inches (mean=31 inches, n=15). Tree height ranged from 39.0 to 117.8 feet (mean=66.7 feet, n=16) and nest height ranged from 26.6 to 74.8 feet (mean=43.6 feet, n=15). Cavity depth ranged from 10 to 18 inches (n=7). Woodpeckers used nests oriented in all directions except for west and northwest, the direction from which much of our winds come (n=16).



Woodpeckers most frequently used dead cottonwoods for nesting.

Re-use of nest sites

We commonly observed re-use of nest sites from previous years. In some instances, different cavities in the same tree were used. In other instances, woodpeckers used a different tree in close proximity to a previously used tree.

Nest tree name	Year discovered	Re-use observations
American Kestrel	2014	Unknown; cavity used by American Kestrels last year
Bald Eagle	2014	Unknown; not used in previous 3 years
Joint Effort	2014	Unknown; not used in previous 3 years
Bridge Slough 1	2010	Yes, for at least four years, though different cavities have been used
Bridge Slough 2	2011	Yes, at least one year
Pump Slough 1	2011	Yes, at least third year of use
Pump Slough 2	2012	Yes, at least second year of use
Blind	2014	Unknown; not used in previous 3 years
Exclosure	2014	Unknown
Ponderosa Snag	2010	Yes, for at least four years, though different cavities have been used
Tear Drop	2011	Yes, at least two previous years
Edge	2014	Unknown; not used in previous 3 years
Woodchuck Creek	2014	Possibly; woodpeckers have either nested in this tree or closely adjacent tree
Woodchuck Ponderosa	2011	Yes
Island Northwest	2014	Unknown; did not monitor this area in previous years.
Island North	2014	Unknown; did not monitor this area in previous years.
Across	2014	Possibly; woodpeckers have either nested in this tree or closely adjacent tree



Lewis’s Woodpeckers have used the Ponderosa Snag (left) and Bridge Slough 1 (right) Nests every year for the past four years.



Color marking

We monitored nests in conjunction with capturing and color-marking adult woodpeckers. We observed marked birds at seven of our nests. At two nests, we had both the male and female marked. Color-marking birds allows us to look at social interactions, nest fidelity, and mate fidelity, all of which could influence nest success. We will have a full report on our color-marking work in the near future.



Nest with marked woodpeckers
Nest with no woodpeckers marked

Proximity to other nests

Most of the nests we monitored were in close proximity to other Lewis’s Woodpecker nests; no nest was greater than 984 feet from another nest, and more than half were less than 230 feet from another nest.

Nest tree name	Distance to nearest nest ft (m)	Number of nests within 984 ft (300 m)
American Kestrel	85 (26)	2
Bald Eagle	85 (26)	1
Joint Effort	105 (32)	3
Bridge Slough 1	105 (32)	3
Bridge Slough 2	197 (60)	3
Pump Slough 1	216 (66)	2
Pump Slough 2	216 (66)	1
Blind	230 (70)	3
Exclosure	322 (98)	1
Ponderosa Snag	322 (98)	1
Tear Drop	686 (209)	1
Edge	686 (209)	at least one
Woodchuck Creek	755 (230)	1
Woodchuck Ponderosa	755 (230)	1
Island Northwest	886 (270)*	at least one
Island North	909 (277)*	at least two
Across	925 (282)*	at least one

*unable to survey entire area around nest due to river proximity



Woodpeckers nested as close as 85 feet from each other.



85 ft

American Kestrel
Nest tree

Bald Eagle
Nest tree

The male (left) at the Bridge Slough 1 Nest aggressively interacted with another adult woodpecker perching on his nest tree. Individuals varied in their reaction to the presence of other adult woodpeckers; most aggressive interactions occurred at the nest tree. Unpaired adults often foraged or perched close to each other. The woodpeckers presumably derive some benefit from nesting close to conspecifics.



Co-nesting

Four of the 17 woodpecker pairs we monitored shared their nest tree with other cavity-nesting species. We could not determine co-nesting for two of the nests.

Nest tree name	Co-nesting species
Bald Eagle	American Kestrel, European Starling
Joint Effort	American Kestrel, House Wren
Ponderosa Snag	European Starling, House Wren
Tear Drop	European Starling

European Starlings



House Wren



American Kestrel

The Bald Eagle Nest tree first fledged European Starlings, followed by American Kestrels, and finally Lewis's Woodpeckers.

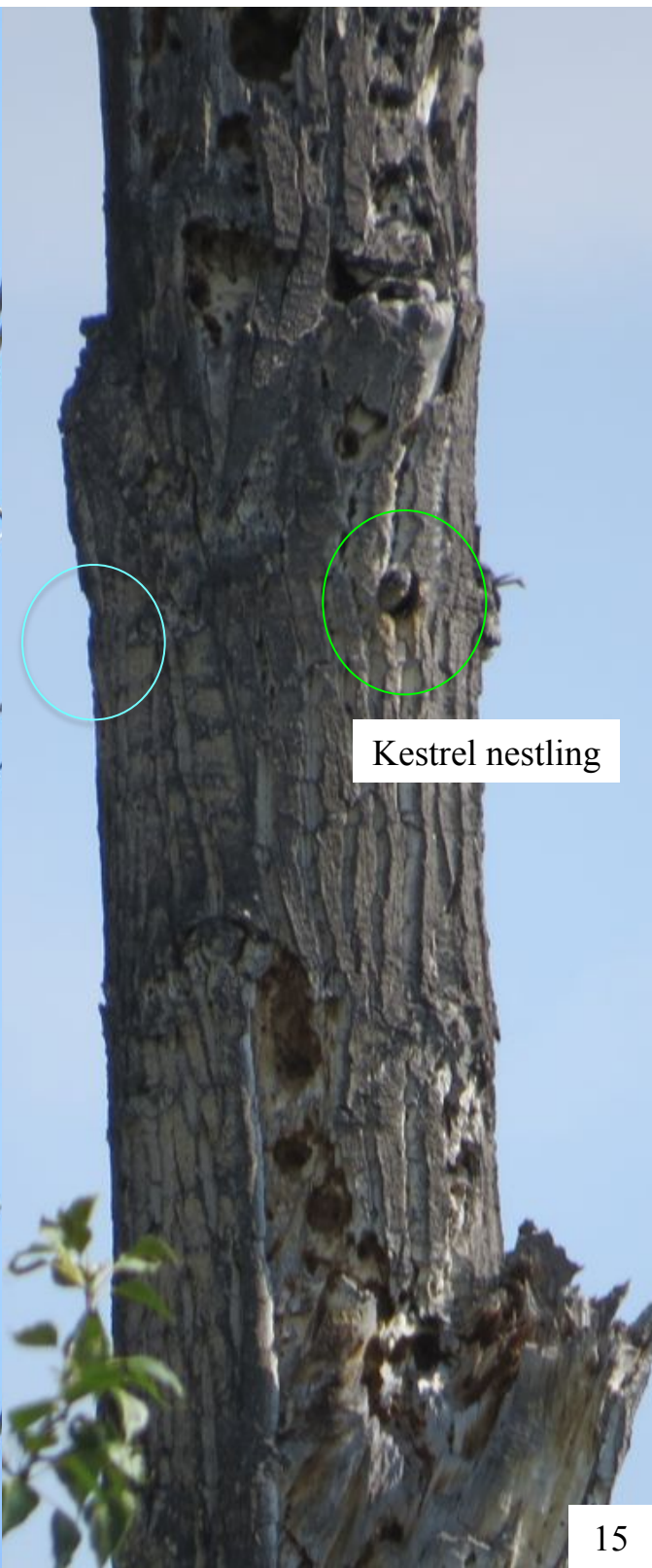


Lewis's Woodpecker nest

American Kestrel nest

European Starling nest

At the Joint Effort Nest, the woodpecker cavity entrance was less than two feet from the kestrel nest cavity entrance, though on slightly different sides of the tree. We saw both species frequenting the area with little interaction. For example, a Lewis's Woodpecker adult delivered food to the nest (left) while the American Kestrel nestlings approached fledging (right).



Lewis's Woodpecker nest
American Kestrel nest

American Kestrel interactions

Lewis’s Woodpecker nests all occurred in close proximity to American Kestrel nests. Kestrels settled on territories and began nesting approximately a month before the woodpeckers. Kestrel fledging started before and overlapped with woodpecker fledging. We did not observe American Kestrel predation of Lewis’s Woodpeckers.



Lewis's Woodpeckers appeared to pay little attention to the presence of American Kestrels. Both species increased their agitation levels as nestlings matured and fledged. In general, both species appeared to vocalize more in response to their partners, young, and conspecifics than in response to each other. In the picture below, a Lewis's Woodpecker made contact with an American Kestrel perched near a suet feeder. This event was our only documentation of direct physical interaction between the two species.



American Kestrels used this nest cavity in 2013. The same pair of kestrels returned in 2014 but moved to a nearby tree, sharing their new tree with another pair of Lewis's Woodpeckers as well as a pair of European Starlings.



Future Directions

As in past years, we documented high nest success in Lewis's Woodpeckers breeding in the cottonwood riparian forests, a habitat characterized as "sink" habitat by Saab and Vierling (2001). Next year we hope to monitor and compare nest success in other habitat types (e.g., burned forest and mid-elevation forest patches). We also plan to begin monitoring earlier to better document nest failures if they occur.



Future Directions

The height of many of our nests precluded use of a peeper camera to monitor nest phenology and nestling development. Next year we plan to modify the peeper camera and pole system to provide a better view of nest contents.



Future Directions

We plan to continue the marking and re-sighting of locally-breeding woodpeckers. The presumed return of marked individuals will allow us to look at nest site and mate fidelity. For example, we know that several nest trees see repeated use from year to year, but we don't know if the same individuals or pairs return to the same nest site. We will also be able to further examine home range size and interactions between paired and unpaired individuals.



A color-marked male guards the Bridge Slough 1 Nest.