

To: Pheasants Forever and the California Department of Fish and Wildlife

From: U.S. Geological Survey, WERC Research Team

Subject: April 2016 Pheasant Project Update

September 2015 – April 2016 Summary Bullets

- Measured 320 hunter harvested male pheasants
- Deployed 89 VHF collars
 - 9 VHF collars at Gray Lodge WA
 - 9 VHF collars at Mandeville Island
 - 13 VHF collars at Yolo WA
 - 17 VHF collars at Lower Klamath NWR
 - 18 VHF collars at Roosevelt Ranch
 - 23 VHF collars at Little Dry Creek Unit, UBBWA
- Deployed 4 GPS transmitters at Lower Klamath NWR
 - 3 GPS transmitters deployed on females
 - 1 GPS transmitter deployed on a male
- Captured, banded, and extracted blood from 13 males
- Collected 36 total blood samples from wild pheasants
- Collected 30 blood samples from farm-raised pheasants
- Obtained 573 VHF telemetry locations
- Obtained 839 GPS telemetry locations
- Recovered 46 mortalities and 1 slipped collar
- Monitored 117 pheasants (114 VHF, 4 GPS)
- Located 11 nests (10 active, 1 failed)
- Conducted 3 predator surveys (raven/raptor)
- Conducted 3 microhabitat surveys

This document is an update specifically related to monitoring and research objectives for the Central Valley ring-necked pheasant research project during the 2016 season as of 30 April. This document does not represent a completed data analysis and findings. Instead, the purpose of this update is to provide you with a summary of our efforts, as well as observations regarding movements, reproduction, habitat, and predators from the field perspective. This information is preliminary and is subject to revision. It is being provided to meet the need for timely best science. The information is provided on the condition that neither the U.S. Geological Survey nor the U.S. Government may be held liable for any damages resulting from the authorized or unauthorized use of the information.

Body Condition Study

During the 2015 pheasant hunting season, we measured hunter harvested male pheasants across seven hunter check stations. Our primary study objective was to detect changes in pheasant body condition during the hunting season and estimate the potential effects of stress from hunting pressure. We measured a total of 320 male pheasants, of which nine were planted pen-reared birds. We measured 13 pheasants at Delevan NWR, 74 at Gray Lodge WA, 45 at Grizzly Island WA, 31 at the Little Dry Creek unit of Upper Butte Basin WA, two at Lower Klamath NWR, three at Sacramento NWR, and 152 at Yolo Bypass WA. Approximately two thirds of the birds were measured within the first two weeks of the pheasant hunting season. At this point in the study sample sizes are limited. Thus, additional years of data are needed to detect spatiotemporal variation in body condition and estimate causal factors.



Male pheasant brought in by a hunter for measurement at Little Dry Creek

Trapping Efforts

To accomplish objectives related to pheasant demography, pheasants were captured and marked with radio (VHF) and satellite (GPS) transmitters across multiple field sites. A total of 89 VHF collars were deployed on female pheasants during September 2015 to April 2016 across the six field sites. During fall trapping efforts in September 2015, we deployed 21 VHF collars, of which two were deployed at Gray Lodge WA, five were deployed at Yolo Bypass WA, six were deployed at Roosevelt Ranch, and eight were deployed at the Little Dry Creek unit of Upper Butte Basin WA. One of the collars deployed at Gray Lodge WA was used to replace an older collar deployed on a female in winter of 2014. During February to April of 2016, we deployed a total of 68 VHF collars and three GPS transmitters on female pheasants and one GPS transmitter on a male pheasant. We deployed seven VHF collars at Gray Lodge WA, nine at Mandeville Island, eight at Yolo Bypass WA, 17 at Lower Klamath NWR, 12 at Roosevelt Ranch, and 15 at Little Dry Creek. All four GPS transmitters were deployed at Lower Klamath NWR.

Including the surviving hens collared during the 2015 field season, we monitored a total of 112 active VHF collars deployed across all six field sites as of 30 April 2016.

Telemetry Monitoring

We carried out telemetry on a sample of pheasant across multiple populations ranging from the Sacramento-San Joaquin River Delta to the Klamath Basin to accomplish the following study objectives: 1) estimating demographic rates, 2) estimating space use patterns, 3) developing population model, and 4) identifying factors that limit and regulate population growth. During September 2015 to April 2016, we obtained 573 ground telemetry locations on 112 active VHF units (Gray Lodge WA, $n = 18$; Mandeville Island, $n = 9$; Yolo Bypass WA, $n = 20$; Lower Klamath NWR, $n = 17$; Roosevelt Ranch, $n = 25$; Little Dry Creek, $n = 23$). An additional two VHF collars deployed at Yolo Bypass WA were not relocated after the wildlife area flooded in March, because the birds either moved out of the study area or the VHF units ceased functioning. We also collected 839 GPS telemetry locations from the four pheasants outfitted with GPS transmitters at Lower Klamath NWR. However, one GPS transmitter deployed on a female stopped transmitting locations shortly after being deployed. Most of the female pheasants outfitted with VHF collars stayed within a kilometer of their capture location, but several birds relocated at Lower Klamath NWR moved two or more kilometers from their capture locations. Pheasants at Lower Klamath NWR appear to be moving greater distances between relocations. This may be because the area is much larger than the other study sites, allowing more opportunities to forage at greater distances. Alternatively, resources to meet seasonal requirements may be scarce and segregated. With additional data, we plan to evaluate these hypotheses.



Captured female being prepped for blood draw at Gray Lodge WA

Reproduction. —Females initiated nest incubation during the first week of April, and the first nest was located on 7 April. We have located 11 nests (10 active, 1 failed) across the six sites as of 30 April. Seven nests were located at Gray Lodge WA, one nest was located at Roosevelt Ranch, and three nests were located at Yolo Bypass WA. The one failed nest was abandoned with 9 eggs at Roosevelt Ranch. The majority of nests were not initiated until the third or fourth week of April, so nesting activity will likely increase during May and June.

Mortalities. —We have recovered 46 mortalities and one slipped collar across all field sites since September 2015. Most of the mortalities occurred over winter during the waterfowl hunting season. Body feathers and bone fragments were recovered at some of the kill sites. However, given the lapse of time in locating many of the mortalities, not all of them may have been caused by predation. One female recovered at Gray Lodge WA in December 2015 was found as a whole carcass with some discharge coming out of her mouth. The cause of her death may have been stress related, but the carcass was saved so a necropsy could be done in the

future. Several mortalities were recovered at Yolo Bypass WA shortly after the area flooded in March, which indicates that heavy rains and flooding may increase the risk of mortality. Lastly, many of the mortalities recovered at Roosevelt Ranch and Little Dry Creek were juvenile females captured in the fall. Since September 2015, we have recovered six mortalities at Gray Lodge WA, three at Mandeville Island, 10 at Yolo Bypass WA, three at Lower Klamath NWR, 11 at Roosevelt Ranch, and 13 at Little Dry Creek.

Microhabitat and Avian Predator Surveys.

We conduct microhabitat surveys at all nest locations and at the first three brood locations. In addition, we conduct 10 minute point count surveys for ravens and raptors at each nest location and at the first three brood locations. During these surveys we also document the presence of livestock and anthropogenic subsidies such as roads, buildings, fences and farms. As of 30 April, we have conducted three raven/raptor and three microhabitat surveys, all of which have been conducted at Roosevelt Ranch.

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