

**ARIZONA GAME AND FISH DEPARTMENT
HABITAT PARTNERSHIP COMMITTEE
HABITAT ENHANCEMENT AND WILDLIFE MANAGEMENT PROPOSAL**

Game Branch / HPC Project Number:	15-503
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PROJECT INFORMATION

Project Title: Reproductive Ecology and Habitat Use of Gould's Wild Turkey	
Region and Game Management Unit: AGFD Region V; Game Management Units 29, 33, 34A, 35AB, 17A, 17B, 18B	
Local Habitat Partnership Committee (LHPC): <ul style="list-style-type: none"> • Mostly Sierra Vista HPC, but potentially Tucson also. 	Was the project presented to the LHPC? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> at the Tucson HPC 8/27/2015
Has this project been submitted in previous years? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>	
If Yes, was it funded? YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> → Funded HPC Project #(s): 14-502	
Project Type: Gathering information to improve management and hunt timing for Gould's Turkey	
Brief Project Summary: This project's focus is to identify reproductive activities of Gould's wild turkey in southeastern Arizona. We will use GPS-enabled backpack transmitters to collect high-resolution spatial information on reproductive phenology, wintering and nesting season habitat selection, roost site selection, and reproductive success. Resultant information on reproductive timing will assist with proper management by informing proper timing of hunts, prescribed fires, aid in management of brood and nesting habitat, use of temporary and permanent water sources, determination of home range, location of roost sites, and future habitat management needs.	
Big Game Wildlife Species to Benefit: Gould's Wild Turkey	

Implementation Schedule (Month/Day/Year): <u>Project Start Date:</u> 1 January 2016 <u>Project End Date:</u> 31 December 2016	Environmental Compliance: NEPA Completed: Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Projected Completion Date: _____ State Historic Preservation Office - Archaeological Clearance: Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Projected Completion Date: _____ Arizona Game and Fish Department EA Checklist: N/A <input type="checkbox"/> To be Completed by: <u>Karen Klima</u> Projected Completion Date: <u>31 December 2016</u>
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PROJECT FUNDING

Special Big Game License Tag Funds Requested:	\$ 41,000
Cost Share or Matching Funds:	\$ 1,105 (volunteer labor and mileage)
Total Project Costs:	\$ 42,105

PARTICIPANT INFORMATION

Applicant (please print): Karen Klima	Address : Arizona Game and Fish Department 555 N. Greasewood Road Tucson, AZ 85745	E-mail: kklima@azgfd.gov
Telephone: 520-388-4477		Date: 31 August 2015

AGFD Contact and Phone No. (If applicant is not AGFD personnel):

Project has been coordinated with: Discussed and supported by the Southeastern Arizona Wild Turkey Advisory Committee. This group meets twice per year and consists of USFS, AZGFD, National Wild Turkey Federation, local sportsmen and women, and Fort Huachuca. We have been discussing the serious need for this research for years and recently we started to collaborate with Dr. Bret Collier, Louisiana State University, to deploy GPS transmitters on Gould's turkeys. The first few transmitters deployed and downloaded were fantastically successful and we all agreed that this is work that is critical to the proper harvest management and continued restoration of Gould's turkey in AZ.

NEED STATEMENT – PROBLEM ANALYSIS:

It has been suspected for some time that Gould's Turkeys have a different breeding timing and may have different habitat affinities than the Merriam's subspecies. We have abundant anecdotal information that these birds may need to be managed separately from Merriam's in some respects. For example, in terms of spring hunt timing, proper management dictates that the timing of removal of males during the breeding season is necessary to manage as improper regulatory timing can and will impact reproductive potential for the population. Removing males too early could result in that harvest being more additive rather than being completely compensatory. Anecdotal information suggests that Gould's breed later by a few weeks and so we may be removing breeding males farther ahead of the peak of breeding than we do Merriam's. Without knowing the timing of the reproductive season for Gould's we can't be sure we have our turkey hunts timed properly. This research will allow us to address that aspect in a manner consistent with what is recommended in the scientific literature and through management actions of turkey managers throughout their range. Knowing the timing of the nesting will also help us and our land management partners to make sure spring prescription burns are not destructive to turkey nests or brood-rearing habitat.

Currently, we are lacking detailed information on how Gould's turkeys use Sky Island habitat. Gould's restoration is off to a great start, but we do not have information on roosting habitat selection, use and availability, especially in low-elevation riparian habitats that they frequent. Additionally, we do not know how often or how important water is through the annual cycle or what areas are important for nesting, brood-rearing, loafing, etc. This high-profile species needs our help and so this research is critical as we move forward towards the full recovery of Gould's turkey. The information gained on home range, location of roost sites, water use, and movements will be important to focus our efforts efficiently on future habitat management needs.

PROJECT OBJECTIVES:

The primary objectives of our project are to:

- Identify timing of reproductive activities (prenesting, laying, incubation onset, nest success, brooding) of Gould's wild turkey hens in Arizona to better assist AGFD personnel with the timing of hunts and habitat management.
- Evaluate Gould's wild turkey movement ecology specifically focusing on habitat selection and use, roost site selection and fidelity, wintering and breeding range size, nesting habitat selection, and brooding habitat selection.

PROJECT DESCRIPTION AND STRATEGIES:

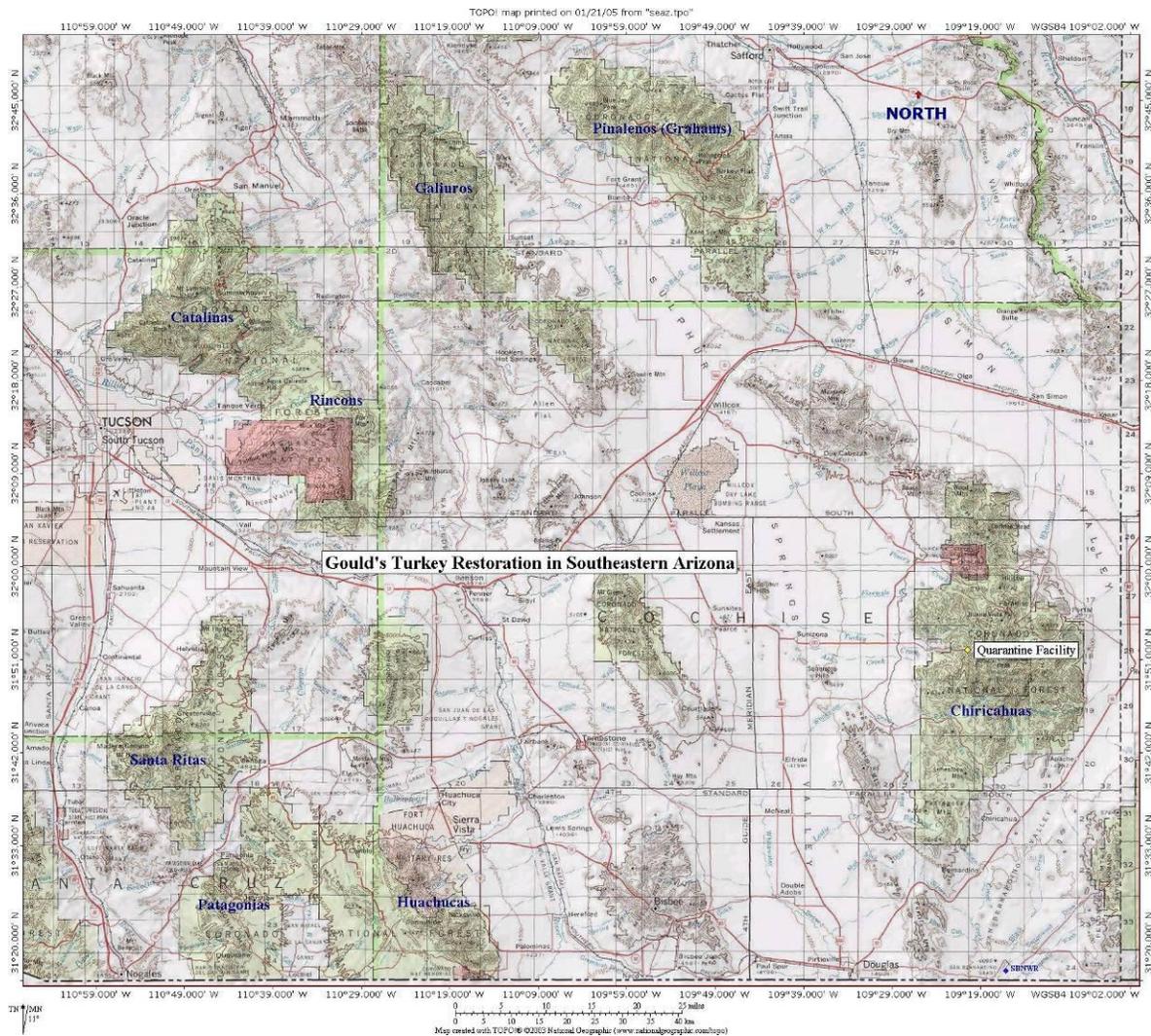
In January-February 2015, we captured (via rocket nets and walk in traps) and tagged 6 female Gould's wild turkeys with a GPS enabled, VHF capable back-pack style radio transmitter. Each transmitter has a 24 hr delay mortality switch and we monitored VHF signals from both fixed wing and/or ground-based telemetry on a monthly basis. Each GPS unit are collecting 1 point every hour between 0600-1400 plus a midnight location (roost sites). Locations at midnight were used to identify roosting habitats (see Appendix 1), while locations from 0600 to 1400 daily provided detailed insight into wild turkey movement ecology and habitat selection and use (see Appendix 2). Over 2,400 locations were downloaded each from two collars. A third collar seemed to be working properly, but no data could be downloaded while a fourth collar was double beeping, indicating a malfunction. Two hens could not be located in Chiricahuas. If the birds were preyed upon, they could have chewed the plastic transmitters and broke the ability to transmit a VHS signal. All GPS units are remote download, so birds do not have to be in hand to recover GPS information. Based on static testing of these units, we expect average locational error to be <10 meters, thus providing a suite of fine scale locational data on wild turkey movements. We downloaded GPS locations from each bird every 2 months to ensure data integrity and provide insight into recent movement trajectory's and habitat usage.

Regional Game Specialists and Wildlife Managers were actively involved with this project. Louisiana State University (Bret Collier) conducted spatial analysis for this project at no cost.

While these transmitters provided spatially explicit information regarding the movement ecology of Gould's wild turkeys in Arizona, more data is needed. With additional radio transmitters, we will develop improved daily movement maps (see Appendices 1 and 2), estimates of range size, timing of various reproductive activities (onset of incubation, time between nest failure and renesting, movements associated with reproductive activities), as well as estimates of habitat selection and use (see Appendices 3 and 4).

PROJECT LOCATION:

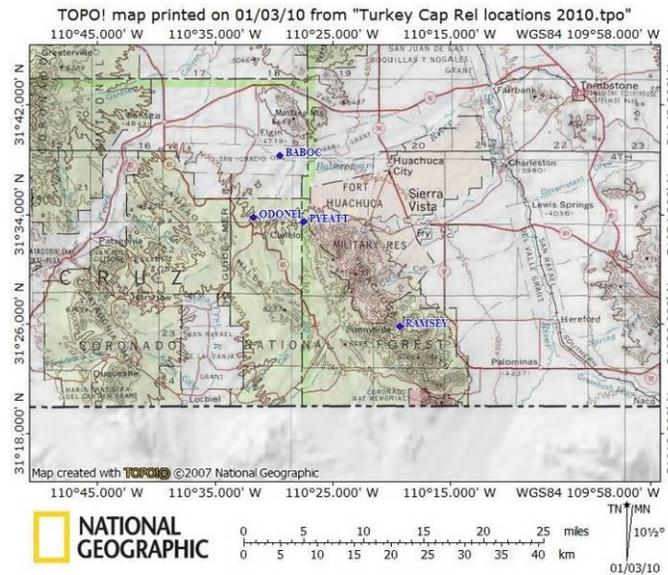
AGFD Region V; Potentially Game Management Units 29 (Chiricahuas), 33 (Catalinas), 34A (Santa Ritas), 35AB (Huachucas and Patagonias), but the work will most probably be conducted in GMU 29 and 35A. A few capture sites may be on private land where turkeys are being fed and congregate in large numbers.



LAND OWNERSHIP AT THE PROJECT SITE(S):

(if the project area is private property, please state specifically and provide the landowner's name)
The Gould's turkeys may be captured on USFS land on the Coronado NF.

The Gould's may be captured from 3 sites on private land.
Danny Mellor's in O'Donnell Canyon, Sierra, possibly the Pyeatt Ranch, and the Babocomari Ranch.



IF PRIVATE PROPERTY, IS THERE A COOPERATIVE BIG GAME STEWARDSHIP or LANDOWNER AGREEMENT BETWEEN THE LANDOWNER AND THE DEPARTMENT?
YES[] NO[x] N/A[]

HABITAT DESCRIPTION:

This area is excellent habitat with similar physiographic characteristics. The riparian zones contain oaks (*Quercus* spp.), wild grape (*Vitis arizonica*), choke cherry (*Prunus virginiana*), junipers (*Juniperus* spp.) pinyon and ponderosa pine (*Pinus* spp.) and a variety of forbs and grasses, while the adjoining canyon sides are replete with a diversity of grasses interspersed with oaks, juniper, and pine. Juniper berries represent an important part of the Gould's turkey's diet in the nearby Peloncillo Mountains of New Mexico. Roosting habitat is present in the form of medium-large oaks and sycamores (*Plantanus wrightii*) in the riparian zone and mature pines (*Pinus* spp.) in the upper portions of the drainages. Open grassy areas at the mouth of the drainages and among the juniper provide green vegetation and invertebrates, which are an important component of good quality brood habitat.

ITEMIZED USE OF FUNDS:

Special Big Game License Tag Funds

Year 1 (1 January 2016-31 December 2016):

-Transmitter Purchase (\$41,000)

Cost Share or Matching Funds (for volunteer labor rates please refer to the worksheet below)

Year 1 (1 January 2015-31 December 2015):

Volunteer trapping and set up, 75 hours and 100 miles (\$1,105)

LIST COOPERATORS AND DESCRIBE POTENTIAL PARTICIPATION:

Louisiana State University (Dr. Bret A. Collier): Dr. Collier will support, at no cost, analysis of spatial data collected during the course of this project.

WOULD IMPLEMENTATION OF THIS PROJECT ASSIST IN PROVIDING, MAINTAINING, OR FACILITATING RECREATIONAL ACCESS?

YES NO N/A

With robust Gould's and Merriam's populations on public land the hunting and nonhunting public, AZGFD and USFS will have more incentive to work to open and maintain public access to areas these birds are found in good densities.

PROJECT MONITORING PLAN:

We will monitor VHF signals and download GPS data from fixed wing aircraft at least 2 times per year targeting mid-June and late August/early September.

PROJECT MAINTENANCE:

Regional Game Specialists and Wildlife Managers along with personnel from Louisiana State University will provide continued maintenance of this project. We will mark 20 Gould's females during spring of 2016.

PROJECT COMPLETION REPORT TO BE FILED BY:

Tucson Regional Game Specialist
Arizona Game and Fish Department
555 N. Greasewood Road
Tucson, AZ 85745
(520) 388-4448

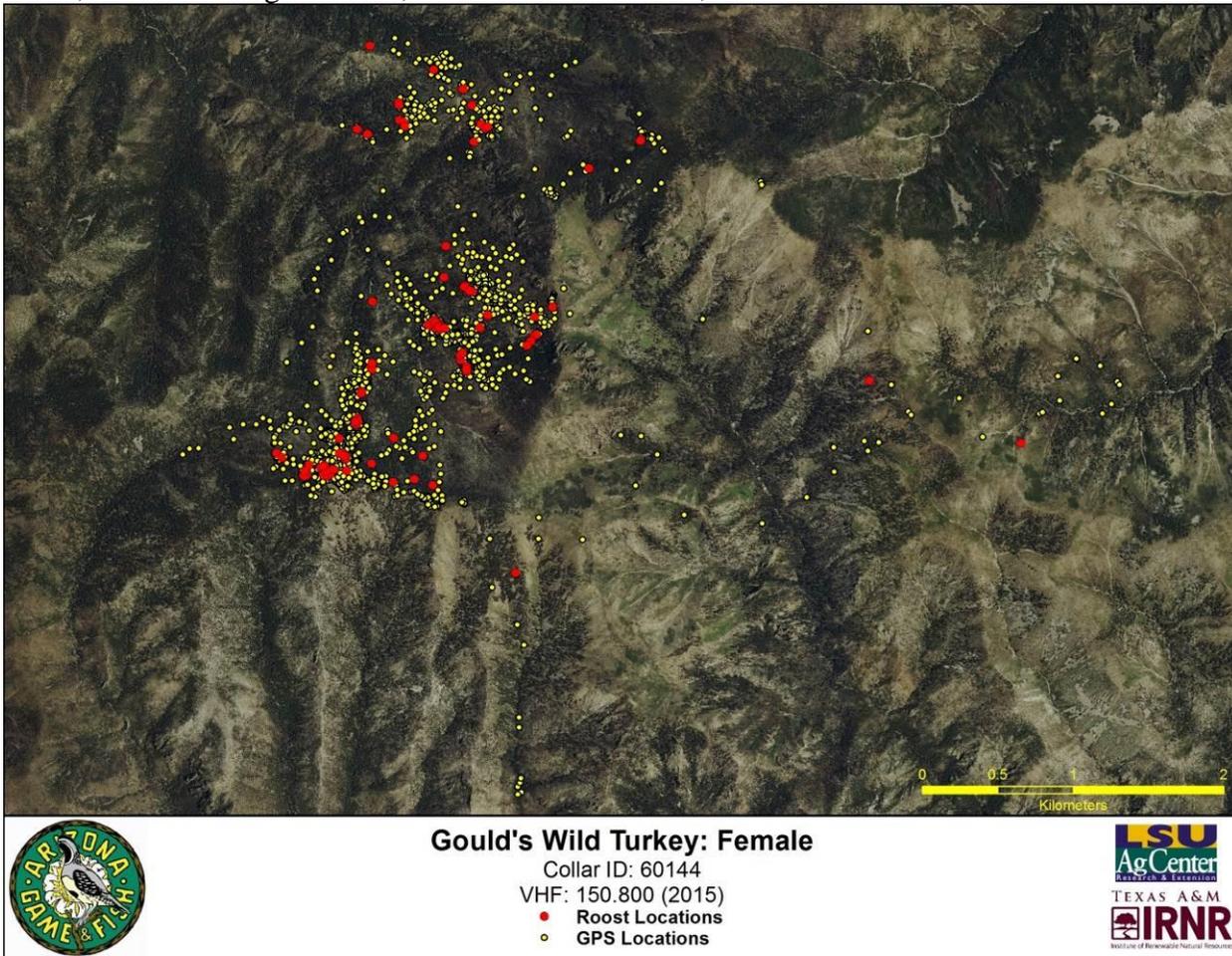
WATER DEVELOPMENT PROJECTS (*please use the worksheet below*):

N/A

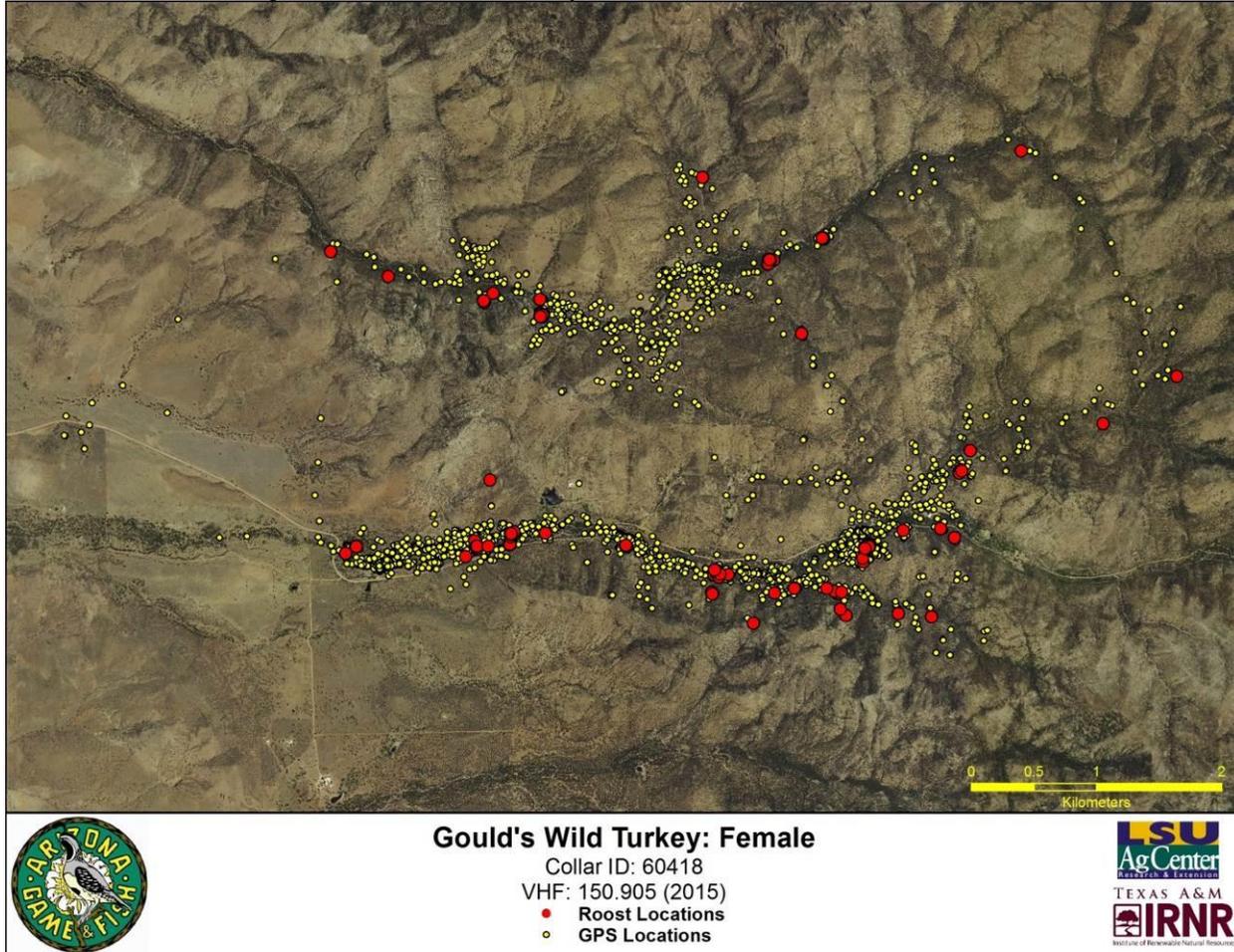
TREE CLEARING/REMOVAL PROJECTS (*please use the worksheet below*):

N/A

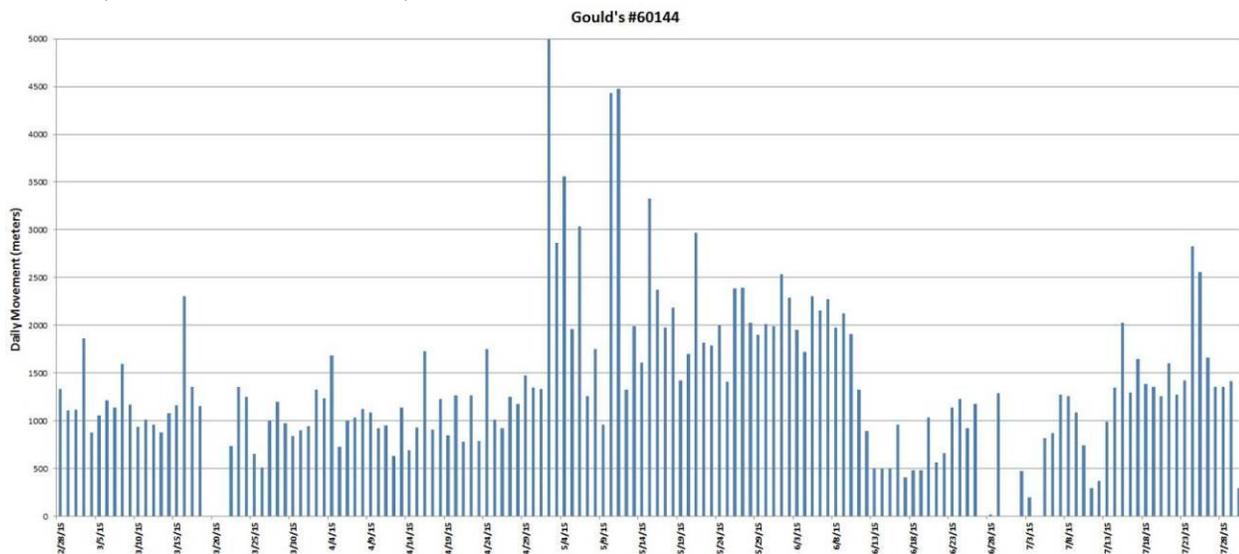
Appendix 1: Daytime GPS locations of 150.800 (hen #60144) in yellow with midnight (roost) locations in red, 2/28/15 through 7/30/15, Chiricahua Mountains, GMU29.



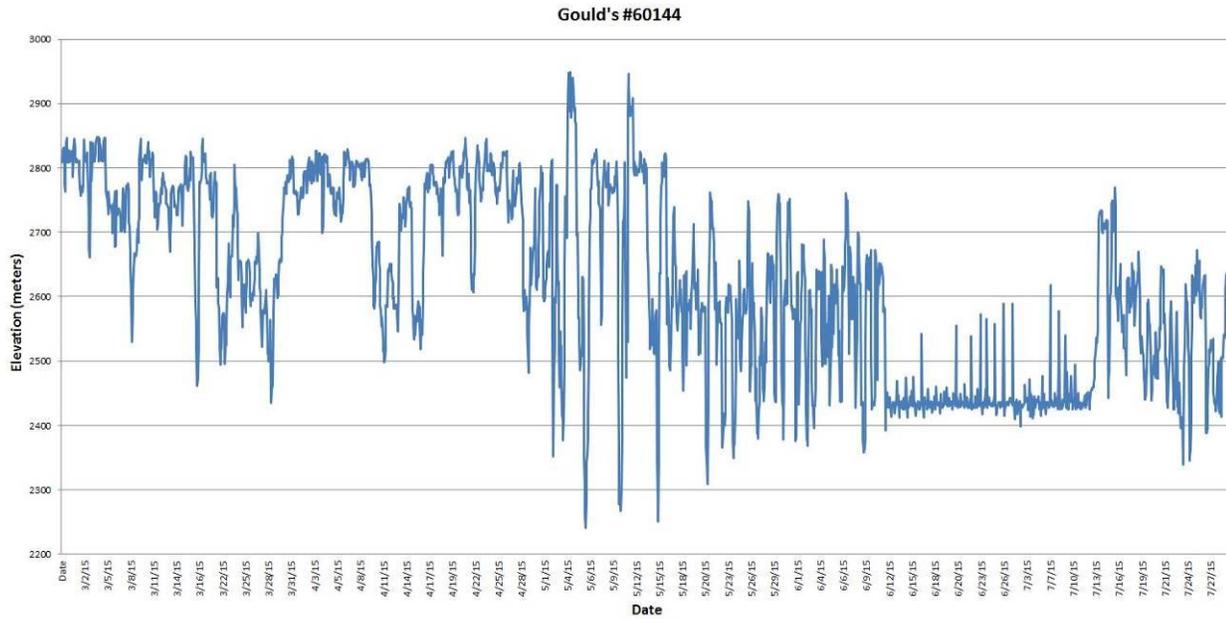
Appendix 2: Daytime GPS locations of 150.905 (hen #60148) in yellow with midnight (roost) locations in red, 2/28/15 through 7/30/15, Rucker Canyon and Rock Creek, Chiricahua Mountains, GMU29.



Appendix 3: Daily movements calculated from GPS locations of 150.800 (hen #60144) 2/28/15 through 7/30/15, Chiricahua Mountains, GMU29.



Appendix 4: Elevations used each day by 150.800 (hen #60144) 2/28/15 through 7/30/15, Chiricahua Mountains, GMU29. The period of incubation is obvious.



ARIZONA GAME AND FISH DEPARTMENT

VOLUNTEER HOURLY RATES AND CLASSIFICATIONS WORKSHEET

PROJECT TITLE: Reproductive Ecology and Habitat Use of Gould's Wild Turkey

The value of volunteer labor should be calculated at the hourly rate of an employee doing similar work, or using hourly rates from the Arizona Department of Administration's Human Resource web site, plus a standard ERE rate of 35%. http://www.hr.state.az.us/ClassComp/CC_Job_Titles_with_Ranges.asp

\$0.445/mile should be the calculation used for mileage.

Water Development	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Habitat Restoration and Clean Up	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Fisheries	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Nongame Branch Project	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Misc/office work	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			varies	
Community Services	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$7.44	
Events and Other	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
Trapping and setup	75	100	\$14.14	1,105
Research Branch	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$14.14	
Wildlife Area Hosts	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$17.44	
Education Programs	Volunteer Hours	Volunteer Miles	Hourly Rate	Estimated Value
			\$16.07	
Totals				1,105