




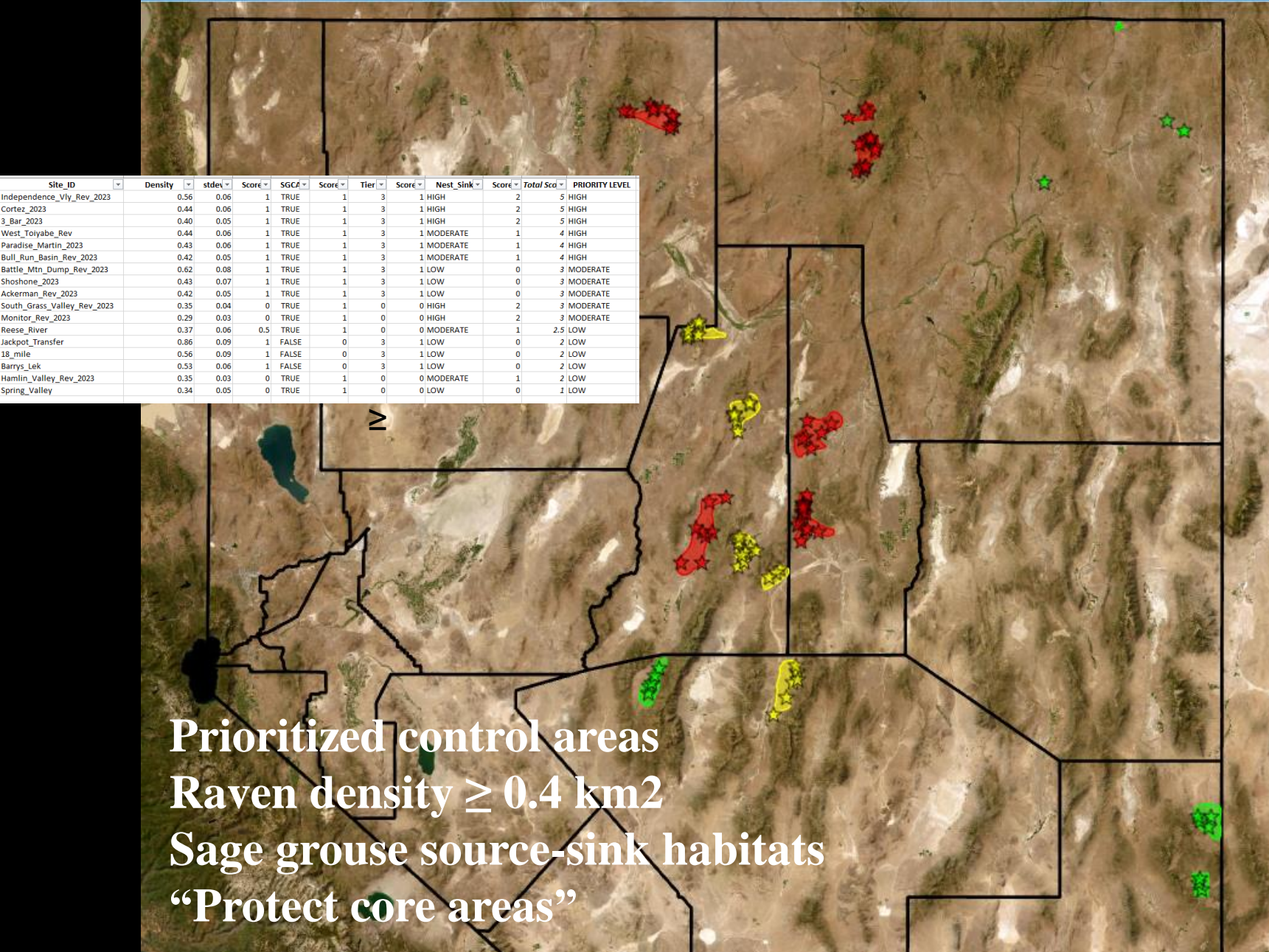
United States Department of Agriculture

USDA-APHIS-Wildlife Services Common Raven Management to Protect Greater Sage-Grouse - 2023 Field Season

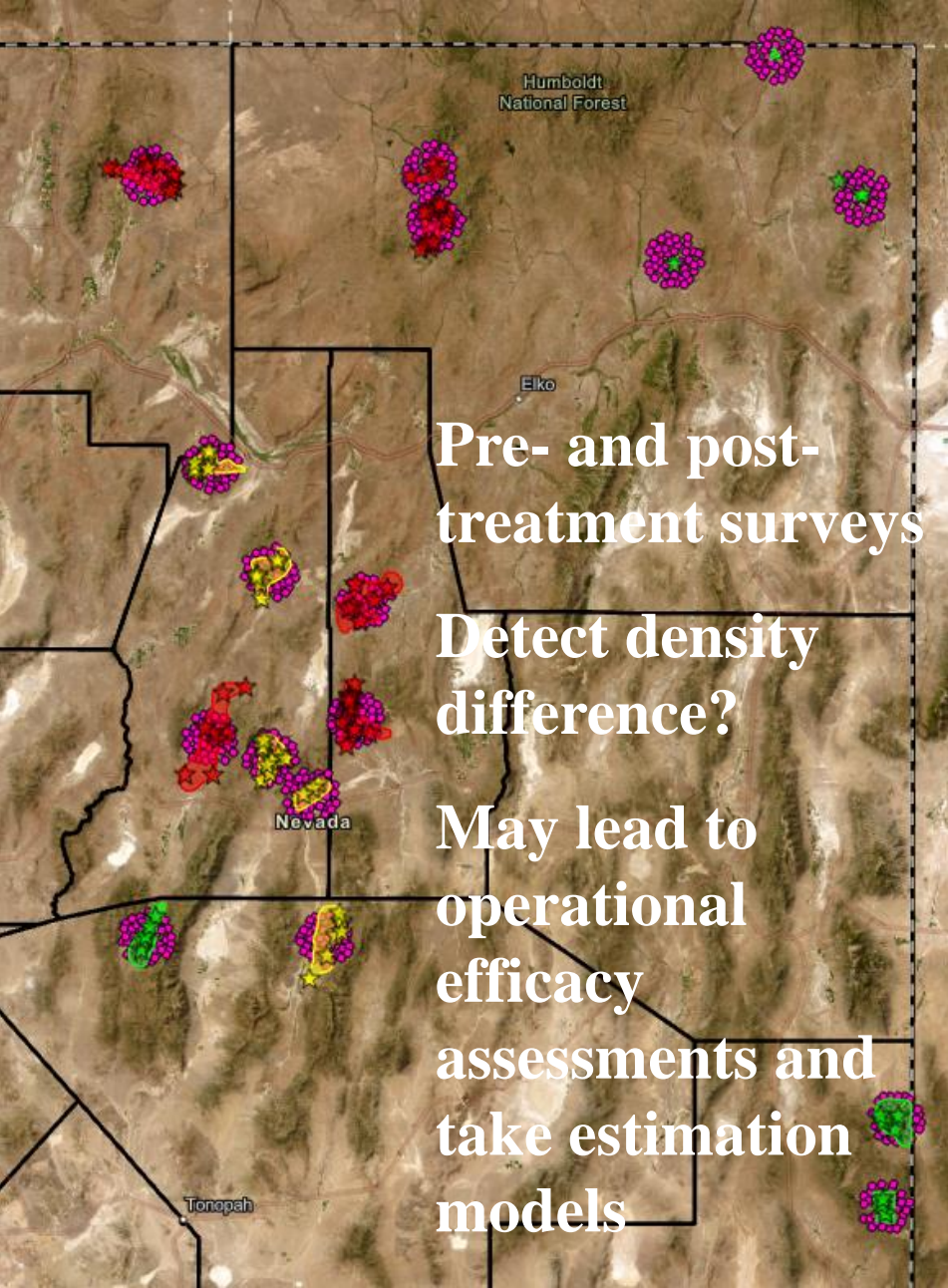


Mark Ono
Nevada State Director
(775) 322-3217
mark.ono@usda.gov

- 
- A semi-transparent background image showing a dark bird, possibly a frigatebird, on a sandy beach. The bird is in the foreground, facing right, with its beak pointed down towards a white egg on the sand. In the background, there are mountains and a cloudy sky.
- **Control strategy**
 - **Data collection**
 - **Results**
 - **Challenges/lessons learned**
 - **Future needs**
 - **Future research**



Prioritized control areas
 Raven density ≥ 0.4 km²
 Sage grouse source-sink habitats
 “Protect core areas”



Pre- and post-treatment surveys
 Detect density difference?
 May lead to operational efficacy assessments and take estimation models

11.0 Raptor, Raven, Horse, and Livestock Surveys

Common ravens are effective sage-grouse nest predators (Coates and others, 2008). Raptors and livestock may also have direct or indirect effects on local grouse populations including predation and altering sagebrush communities. Therefore, we conduct surveys for ravens, raptors, horses, and livestock (RRHL) at the following locations and events:

- lek counts
- nest checks
- brood checks (day locations)
- independent random locations (nests)
- dependent random locations (broods)
- Independent random locations (other RRHL)

Each of these surveys consist of a 10-minute point count in which all species and subsides within 2-3 km of the observer are recorded (details below). Always use predetermined locations (e.g., nests, leks, brood locations, random points) for RRHL surveys, and try to space the surveys randomly throughout the day to avoid a bias caused by time of day. RRHL surveys are not conducted at general telemetry locations. For lek sites, and random survey locations that are NOT associated with a nest, it is acceptable to move as much as 10 meters from the survey point to a spot with the best view of the landscape. This is especially true if there is a large object obstructing your view, such as a jumper, close to the survey point. If your view of the sky is still blocked by more than 40%, then continue conducting the survey but record this in your notes. Surveys should be conducted immediately following nest checks. However, counts should not be conducted within 50 m of a nest while the nest is active in order to avoid potentially causing in a predator to the nest location. Surveys will predominantly be conducted during the nesting season but will also include the brood-rearing season.

At each study site, crews will conduct one independent random (IR) RRHL each day they are in the field once used RRHLs have been initiated. IR points should be conducted in the sequential order of the ID number (1, 2, 3, ...).

Do Not pick IRs because they may be conveniently located. Random points will be generated so that every 5° point is not associated with a road. Therefore, we will have a mix of road points (R) and non-road points (NR). For safety, conduct surveys from at least 10-m off the shoulder of a major road or highway, and be very cognizant of traffic hazards. Those that fall on land we do not have permission to access and points that are over 2.5 km from a road (highway, two-lane road, or two-track) may be skipped. If going to a point along a 2-track, and the 2-track stops, conduct the IR where the 2-track stops (and discard all future IRs along that route, other than off road pts < 2.5 km away).

Survey Equipment

- Binoculars
- iPhone (MotionX GPS, timer, GoCanvas, iBird)
- Field notebook and writing utensil
- Rangefinder
- Anemometer

The survey lasts 10 minutes. During the survey, try to search 360° evenly around your location (Figure 11.1). Split time between scanning with binoculars and the naked eye. Some birds can be more easily spotted with a particular method depending on the terrain or distance. When scanning, all sections of the

lightly below the horizon up through segment directly adjacent to the area zion. Repeat this process until the action, a bird flying behind you might be blind (2 independent surveys at the scene surveyors while conducting a alert the other person to the

of observed within 3 km of the number of individuals as well as the example, if a bird is first detected During the 10-minute survey, birds see. Therefore, it is imperative (for aring and behavior of birds/livestock hether or not they eventually flew a, a behavior should be recorded. The pp. If you cannot find an appropriate rior in the notes section. If several ng to the center of the group of birds, species is unknown, try to identify it more than once. Try to keep in mind ve to where you are searching. If you or more) birds, record the data for the activity section. If a bird is detected it. It may be useful to record all the survey form when the survey is

following information:

that you otherwise know are these sides are any form of anthropogenic raptor presence in a particular area.

because we can structures (e.g., power lines) or nesting and perching substrates (Figure 11.1). Therefore, it is critical all subsides are accurately recorded. Arch-top will be used to record many of our subsides by the management team, but we are not able to detect certain structures such as fences. You should also record subsides that can be moved such as hay bales, pivot lines, and water troughs/guzzlers. It is important to make sure you record the closest distance to the subsidy when recording the distance and bearing to subsides

Remember, the nearest point may change as you change location. Distances can be measured on aerial photos in MotionX.



Figure 11.1. Technician conducting a RRHL survey (left). An example of a subsidy: raven nest in powerline structure (right).

survey:
 survey in the
 but water (water
 es, and
 ger recorded in
 regularly study,
 fly good job with
 watching with



USGS RRHL Surveys

3:27 83

RRHL Form

Pre-Survey Information

Field Site *

Date *

Weather *

Wind (kph) *

Observer *

Location *

1 of 4

11:13 84

RRHL Form

Subsidies

Select all subsidies present

- Fence
- Hay bale
- Pivot Line
- Water trough/guzzler (i.e. transient water)
- Carrion

2 of 4

11:30 92

RRHL Form

Start Time

Start Time *

AS SOON AS YOU SET THE TIME - BEGIN YOUR SURVEY

HIT THE 'NEXT' BUTTON BELOW TO ENTER IN YOUR OBSERVATION(S)

3 of 4

11:13 84

RRHL Form

Species Observations

Species

Count

Observation Time

Distance Rangefinder (meters)

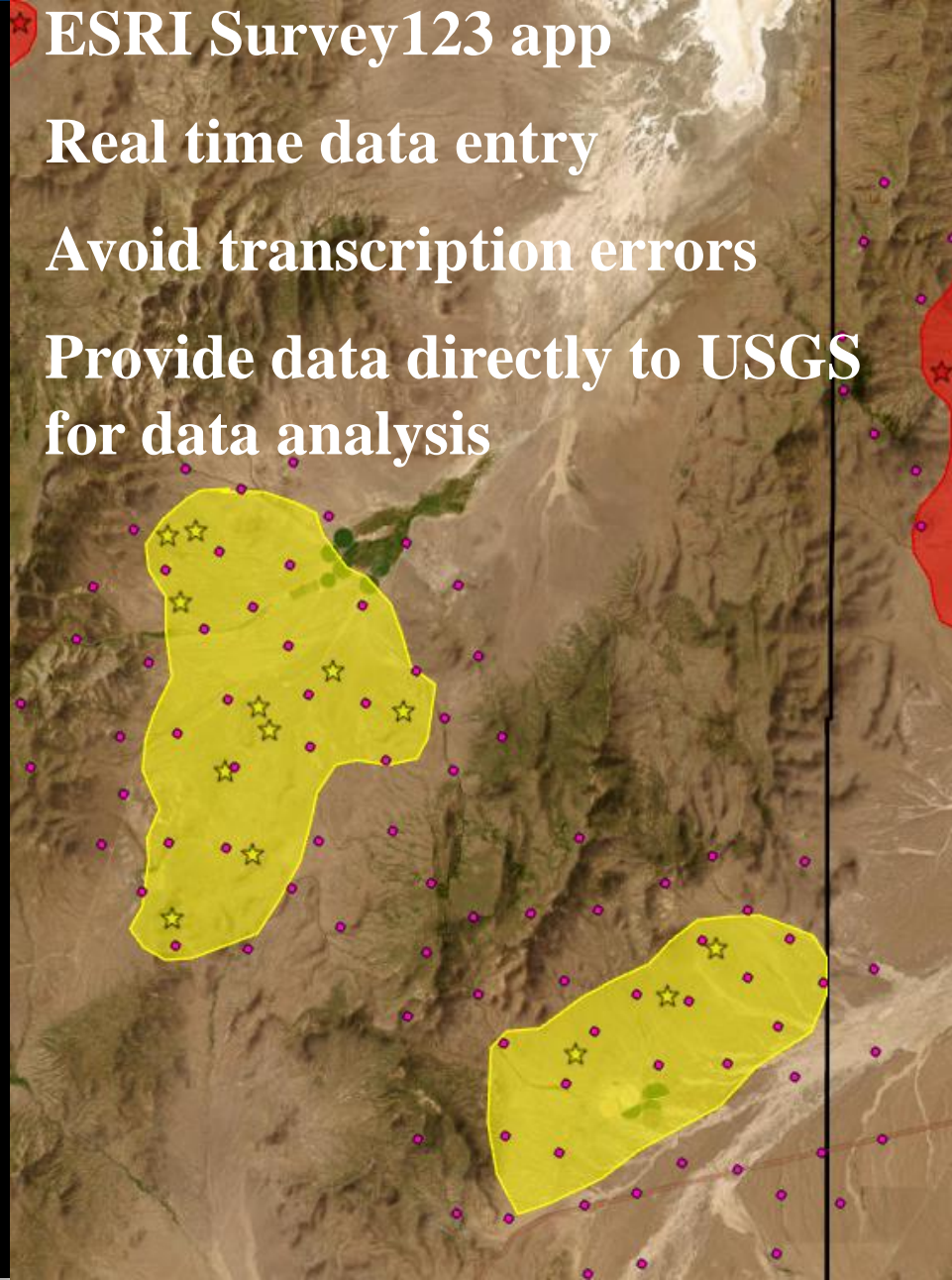
Birds can only be accurately identified up to 2,000 meters. Horses and livestock up to 3,000 meters.

Bearing (degrees)

Behavior

Comments (only 255 characters)

4 of 4



ESRI Survey123 app

Real time data entry

Avoid transcription errors

Provide data directly to USGS for data analysis



- **DRC-1339 egg treatments**
- **Opportunistic shooting - focus on nesting pairs within 2 km of lek sites (blinds, decoys, calls)**
- **Nest/egg destruction**
- **Document predator attractants, raven nest sites, sage grouse locations**

RESTRICTED USE PESTICIDE
DUE TO HIGH ACUTE INHALATION TOXICITY AND EYE AND SKIN CORROSIVENESS TO HUMANS; HIGH ACUTE TOXICITY TO NONTARGET BIRDS AND AQUATIC INVERTEBRATES; AND THE NEED FOR HIGHLY SPECIALIZED APPLICATOR TRAINING.
 For sale and transfer to, and use only by certified USDA APIS and Nevada Department of Agriculture applicators or persons working under their direct supervision for those uses covered by their certified applicator credential.

FIFRA SECTION 24(c) SPECIAL LOCAL NEED LABEL
FOR DISTRIBUTION AND USE ONLY WITHIN NEVADA

This product may only be used for the control of American crows (*Corvus brachyrhynchos*), Chihuahuan ravens (*Corvus cryptoleucus*), common ravens (*Corvus corax*), and black-billed magpies (*Pica hudsonia*) that prey on or are suspected of preying on the eggs or the young of Federally-designated Threatened or Endangered Species or on other species designated to be in need of special protection by Federal or State wildlife agencies, to nest, roost, or loaf at landfills, deadfalls, dump site locations or on utility poles, electrical line towers, communication towers, or other man-made structures and cause fire threat, or that feed on the contents of silage/fodder bags or that pose a threat to human health and safety, threat to sensitive wildlife species or damage to structures.

This label is valid until December 31, 2024 or until otherwise amended, withdrawn, canceled or suspended.


COMPOUND DRC-1339 CONCENTRATE – LIVESTOCK, NEST & FODDER DEPREDACTIONS – NEVADA

**EPA Reg. No. 56228-29
EPA SLN No. NV-150001**

ACTIVE INGREDIENT:	
DRC-1339 3-chloro-p-toluidine hydrochloride	97.0%
OTHER INGREDIENTS:	3.0%
TOTAL:	100.0%

KEEP OUT OF REACH OF CHILDREN

**ANGER-PELIGRO
POISON**



ENDANGERED SPECIES CONSIDERATIONS

- Before undertaking any control operations with the product, consult with local, State, and Federal Wildlife authorities to ensure the use of the product presents no hazard to any Threatened or Endangered Species.
- **DO NOT** apply in areas where toxic baits may be consumed by Threatened or Endangered Species unless special precautions are taken to limit such exposures. Such precautions shall include observation or baited sites and hazing tactics to frighten away Threatened or Endangered species that otherwise might feed upon baits. The Threatened and Endangered species potentially at risk from use of this product are listed below.

THREATENED AND ENDANGERED SPECIES:

- Piping plover (*Charadrius melodus*)
- Yellow-billed cuckoo (*Coccyzus americanus*)

EPA SLN No. NV-150001
EPA Est. 56228-ID-1

Page 1 of 4
Version March-19-2020



United States Department of Agriculture

DRC-1339 Avicide



DRC 1339
Joe Bennett
East District Supervisor





Pre-Work Tasks

USFWS Migratory Bird Permits

Page 1 of 3
DEPREDEATION

Permit Number: MB37116A-0
Effective: 07/01/2018 Expires: 06/30/2019

Issuing Office:
Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
2800 Cottage Way - Room W-2606
Sacramento, CA 95825
Tel: 916-978-6183 Fax: 916-978-6183
Email: permitsR&MB@fws.gov

Amedee Briskey
CHIEF, DIVISION OF MIGRATORY BIRDS, REGION 8

Permittee:
NEVADA DEPARTMENT OF WILDLIFE (NDOW)
1100 VALLEY RD
RENO, NV 89512
U.S.A.

Name and Title of Principal Officer:
PAT JACKSON - PREDATOR MANAGEMENT STAFF SPECIALIST
Authority: Statutes and Regulations: 16 USC 703-712; 50 CFR Part 13, 50 CFR 21.41

Location where authorized activity may be conducted:
Elko, Eureka, Humboldt, Lander, Lincoln, Lyon, Washoe, and White Pine Counties in Nevada

Reporting requirements:
ANNUAL REPORT DUE: January 31 (for the previous calendar year January 1 to December 31)

Authorizations and Conditions:

A. General conditions set out in subpart B of 50 CFR 13, and specific conditions contained in federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.

B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local, tribal, or other federal law.

C. Valid for use by permittee named above.

D. You are authorized to lethally take 2500 Common Ravens for protection of Greater Sage-Grouse. You are authorized to use the following methods of lethal take: firearms with non-toxic ammunition and/or DRC-1339. Lethal take must not to be the primary means of control. Killing is restricted to those birds which cannot be scared away by aggressive non-lethal control efforts. Active hazing, harassment, human subsidy management, or other non-lethal techniques must continue in conjunction with any lethal take of migratory birds.

Depredation Permit
2500

SPECIAL PURPOSE - MISCELLANEOUS
Permit Number: MBPER1891540
Version Number: 0
Effective: 2023-03-20 Expires: 2025-03-31

Issuing Office:
Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
MB Sacramento Permit Office
2800 Cottage Way - Room W-2606
Sacramento, California 95825
permitsR&MB@fws.gov
Tel: 916-978-6183

Permittee:
Nevada Department of Wildlife
6980 Sierra Center Parkway, Ste 120
Reno, Nevada 89511
U.S.A.

Name and Title of Principal Officer:
Alan Jenne
Authority: Statutes and Regulations: 16 U.S.C 703-712 50 CFR Part 13, 50 CFR 21.95

Location where authorized activity may be conducted:
Activities are authorized in Elko, Eureka, Humboldt, Lander, Lincoln, Lyon, Washoe, and White Pine counties near sage-grouse leks. Records are maintained at the address above.

Reporting requirements:
ANNUAL REPORT DUE: 1/31 You must submit an annual report to your Regional Migratory Bird Permit Office each year, even if you had no activity. Form can be found at: <https://fwsepermits.servicenowservices.com/fws> Under "Explore Permits" select your permit type. Annual Report Form is under Permit Details.

Digitally signed by
JENNIFER BROWN
Supervisory Wildlife Biologist
Digitally signed by JENNIFER BROWN
Date: 2023.03.20 15:34:33 -0700

Special Purpose – Misc.
80



Pre-Work Tasks

BLM Chemical Application Notification (CAN)

Clear Form

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
WILDLIFE SERVICES

CHEMICAL APPLICATION NOTIFICATION

1. TO: BLM DISTRICT OFFICE / AUTHORIZED OFFICER
Battle Mountain District Office - Doug Purdalo, District Manager, Prudence Crampton, Associate District Manager
Mount Lewis Field Office - John Shreve, Field Office Manager

2. FROM: USDA APHIS WIS OFFICE
Nevada State Office
8775 Technology Way
Reno, NV 89521

3. STATE: NEVADA

4. COUNTY: Lander

5. PREPARER OF NOTIFICATION: Jack Sengl

6. DATE OF SUBMISSION: 4/7/23

I. TREATMENT INFORMATION

7. PROJECT/PROPOSED TREATMENT NAME:
20230407_RUPNot_Ackerman

8. ANNUAL WORK PLAN (AWP) / WILDLIFE DAMAGE MANAGEMENT PLAN (WDM):
20230124 BLM WDM Work Plan 2023 Final

9. EA REFERENCE TITLE:
Final Environmental Assessment: Predator Damage Management in Nevada, July 2020

10. ALLOTMENT NAME (enter N/A if not applicable):
N/A

11. AREA CONSIDERED FOR CHEMICAL APPLICATION		12. AREA EXCLUDED FROM CHEMICAL APPLICATION	
A. SECTION(S)	B. TOWNSHIP/RANGE OR PASTURE	A. SECTION(S)	B. TOWNSHIP/RANGE OR PASTURE
(all within polygon in attached map)	19N 46E, 19N 47E, 19N 48E		
(all within polygon in attached map)	20N 47E, 20N 48E		

II. CHEMICAL INFORMATION

13. PESTICIDE TRADE AND COMMON NAME:
Compound DRG-1338 Concentrate -
Lifestock, Host & Trapper Operations

14. PESTICIDE EPA REGISTRATION NUMBER:
56228-29; NV-150001

15. PESTICIDE MANUFACTURER:
Pocatello Supply Depot

16. MAXIMUM RATE/DENSITY OF APPLICATION (AS STATED ON THE LABEL):
1,000 egg baits/acre

17. ANTICIPATED APPLICATION DATES (MM/YY to MM/YY):
04/2023 to 06/2023

III. SITE DESCRIPTION/CHARACTERISTICS

18. GENERAL APPLICATION SITE DESCRIPTION (if applicable):
Raven removal to protect sage-grouse eggs and chicks.

19. SENSITIVE ASPECTS AND PRECAUTIONS (enter N/A if not applicable):
None

IV. CONFIDENTIALITY STATEMENT

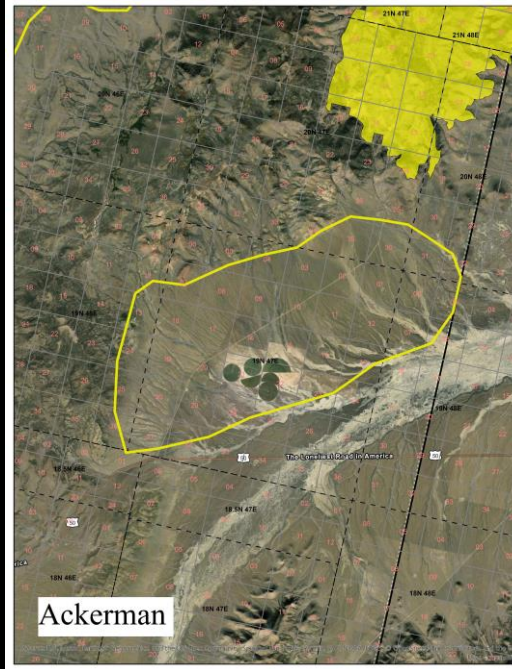
This form is subject to the confidentiality provision of Section 1619 of the Food, Conservation, and Energy Act of 2008 and the Privacy Act of 1974 (7 USC § 8791).

V. RECEIPT AND ACKNOWLEDGEMENT

(Return to submitter within 72 hours of submission)

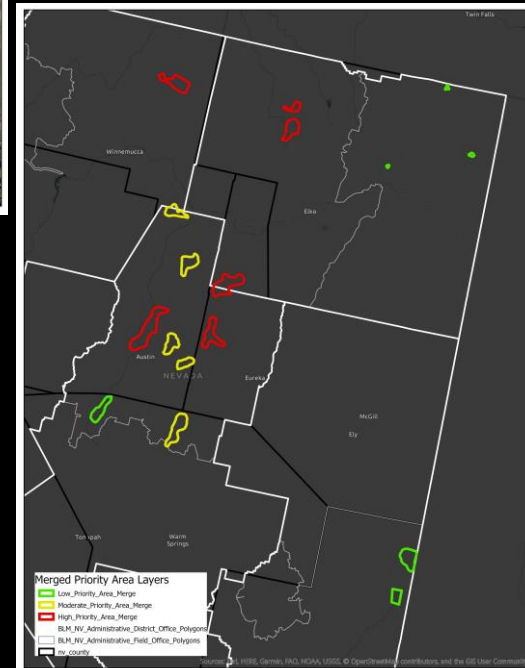
20. NAME AND SIGNATURE OF BLM AGENT:
Sengl

21. DATE



Pursuant to AWP and MOU

Consistent with NEPA





Pre-Work Tasks

Trespass Agreements Work Initiation Document (WID)

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0273-0035. The time required to complete this information collection is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. **OMB Approved 0579-0335 EXP: 09/2022**

UNITED STATES DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE WILDLIFE SERVICES

WORK INITIATION DOCUMENT FOR WILDLIFE DAMAGE MANAGEMENT

1. WORK INITIATION DOCUMENT NUMBER

2. STATUS NEW RENEWAL NATIONAL WILDLIFE RESEARCH CENTER

3A. TYPE OF WORK INITIATION DOCUMENT (mark all that apply)

PRIVATE PROPERTY NON-PRIVATE PROPERTY TEMPORARY/CIVIL

ADJACENT LANDOWNER AMENDMENT TO AN EXISTING WORK INITIATION DOCUMENT

3B. ASSIGN TO THESE SPECIAL GROUPS

(1) _____
(2) _____
(3) _____
(4) _____

4. COOPERATOR NAME (last, first, MI)

5. COOPERATOR MAILING ADDRESS

6. COMMON NAME

7. COOPERATOR TELEPHONE NUMBER

8. OWNER OR REPRESENTATIVE NAME (if different from Cooperator)

9. OWNER OR REPRESENTATIVE TELEPHONE NUMBER

10. OWNER OR REPRESENTATIVE ADDRESS (if different from Cooperator)

11. PROPERTY / LAND CLASS INFORMATION				12. ADJOINING PROPERTY WID NO.'s		13. TARGETED SPECIES	
COUNTY	PROPERTY	LAND CLASS	ACRES	A.	B.	F.	F.
A.				A.	A.		F.
B.				B.	B.		G.
C.				C.	C.		H.
D.				D.	D.		I.
E.				E.	E.		J.
STATE			TOTAL ACRES			<input type="checkbox"/> 14. There are additional targeted species (reportable and attach WS Form 12 Addendum)	

15. In consideration of the benefits to be derived from the proper management of damage caused by those species listed in Item 13 (and Item 14 if applicable), I, the undersigned Cooperator or Cooperator's representative, do hereby give my consent and concurrence to the Animal and Plant Health Inspection Service (APHIS) (to include its officials, employees, and agents) to use, upon lands owned, leased, or otherwise controlled by me, and identified by this Work Initiation Document, the following methods and devices (COMPONENTS):

A.	B.	C.
D.	E.	F.

16. There are additional methods (reportable and attach WS Form 12 Addendum)

17. I, the Cooperator or Cooperator's representative, have been informed of the methods and the manner in which the control materials and devices listed in Section 4 will be used, and of the possible hazards associated with their use. I understand that APHIS (to include its officers, employees, and agents) will exercise reasonable precautions to safeguard all persons to prevent injury to animal life other than those listed in Section 3, Item 13 (and Item 14, if applicable); guard against the mishandling of control devices and materials; and exercise due caution and proper judgment in all wildlife damage management operations. I understand that APHIS WS will maintain restricted use pesticide application records on applications made under the Work Initiation Document, and that APHIS WS will provide copies of the records or record information promptly upon the property owner's or cooperator's request. I understand that APHIS WS may collect Global Positioning System (GPS) coordinates at the project site as part of component or activity tracking or as wildlife disease monitoring or research data. As a Lessee, the Cooperator agrees that the lease is current and will remain so while APHIS WS conducts operational activities on the property, and will notify WS if the lease expires or is canceled. The Lessee agrees to notify the landowner about any methods or devices (components) in use by APHIS WS on the property.

18. In consideration of these understandings and of the benefits to be derived, I, the Cooperator or Cooperator's representative, agree to take reasonable precautions to prevent injury to livestock and other domestic animals; assume responsibility for injury to my property under my control when said injury is not the result of negligence on the part of APHIS; assist in maintaining such warning signs as APHIS may place for the purpose of notifying persons entering onto such lands of the possible hazards associated with wildlife damage management measures in use thereon; and to give adequate warning of these possible hazards to persons I authorize to enter onto such lands. Further, in recognition of the benefits to be derived from the use of specified methods and devices authorized by this Work Initiation Document, I, the cooperator or cooperator's representative, agree not to concurrently use or allow to be used upon lands covered by this Work Initiation Document any toxic material that might reasonably be expected to take a species listed above in Section 3, Item 13 (and Item 14, if applicable), unless such use of said toxicant is agreed to by APHIS in writing.

19. SPECIAL CONSIDERATIONS

20A. LANDOWNER, LESSEE, OR ADMINISTRATOR NAME AND TITLE

20B. SIGNATURE

20C. DATE

21A. APHIS REPRESENTATIVE NAME

21B. SIGNATURE

21C. DATE

21D. APHIS REPRESENTATIVE TELEPHONE NUMBER

21E. STATE OFFICE ADDRESS

PRIVACY ACT NOTICE

Maintains a system of records provide each individual from whom the agency solicits information with

THORITY FOR REQUESTING INFORMATION

Officers, agents, and employees of the United States Department of Agriculture (USDA), Animal Services (WS) to conduct a program of wildlife services and to enter into agreements with States, agencies, organizations, and institutions for the purpose of conducting such services.

TYPE OF YOUR DISCLOSURE OF INFORMATION

Wildlife Services is voluntary.

PROPOSE FOR WHICH THE INFORMATION IS SOLICITED

Planning and implementing agreements for control of wildlife damage.

SITUATIONS WHICH MAY BE MADE OF THE INFORMATION

Government officials, employees, or contractors and other parties as necessary to carry out the planning program. Such contractors and other parties will be bound by the nondisclosure agreement the agency in carrying out the program, and thus is compatible with the purpose for which the

information is collected. The information is collected from a local, Tribal, or foreign, charged with responsibility of investigating or prosecuting a violation of statute, rule, regulation, or order issued pursuant thereto, of any record within this system when the information is collected for law, whether civil, criminal, or regulatory in nature, and either arising by general statute or order issued pursuant thereto.

The information is collected from any component thereof, or any employee of the agency in his or her official capacity, or any other person who is in the employ of the agency, or the United States, is likely to affect the agency or any of its components, is a party to litigation or has an interest in litigation, where the Department of Justice is deemed by the agency to be relevant and necessary to the litigation; or where the agency determines that disclosure of the records to the Department of Justice is a use of the information for which the records were collected.

The information is collected from any body before which the agency is authorized to appear, when the agency, or any component thereof, or any employee of the agency in his or her individual capacity where the agency files, where the agency determines that litigation is likely to affect the agency or any of its components, is a party to litigation, and the agency determines that use of such records is relevant and necessary to the litigation; or where the agency determines that disclosure of the records to the court is a use of the information for which the records were collected.

The information is collected from any person who the agency suspects or has confirmed that the security or confidentiality of information in the system is at risk as a result of the suspected or confirmed compromise, there is a risk of harm to the agency, or a risk of harm to the security or integrity of this system or other systems or programs or entities that rely upon the compromised information; and the disclosure made to such agencies, organizations, or individuals in connection with the agency's efforts to respond to the suspected or confirmed compromise and

to identify patterns, trends, or anomalies indicative of

violations of Land Management and the U.S. Fish and Wildlife Service, relating to wildlife damage on

31 U.S.C. 3711(e);

and their employees and contractors who collaborate with Wildlife Services in management projects or programs, or who have an interest in, or regulate, animal or public health,

and the U.S. Environmental Protection Agency, in compliance with the Federal Insecticide, Fungicide, and Plant Disease Act (7 U.S.C. 136(f, and I thru l), of the location on a cooperator's property where certain regulated substances are applied; and

the National Archives and Records Administration (NARA) or to the General Services Administration for records management inspections

CONSEQUENCES OF FAILURE TO FURNISH INFORMATION

Subject you to penalties or adverse consequences.

For lands other than BLM or USFS

Initial contact to private landowners by NDOW



United States Department of Agriculture

Pre-Work Tasks

Field Employee Housing

**USFS Austin-Tonopah
Ranger District Bunkhouse,
Austin**

**BLM Fire Housing, Battle
Mountain**



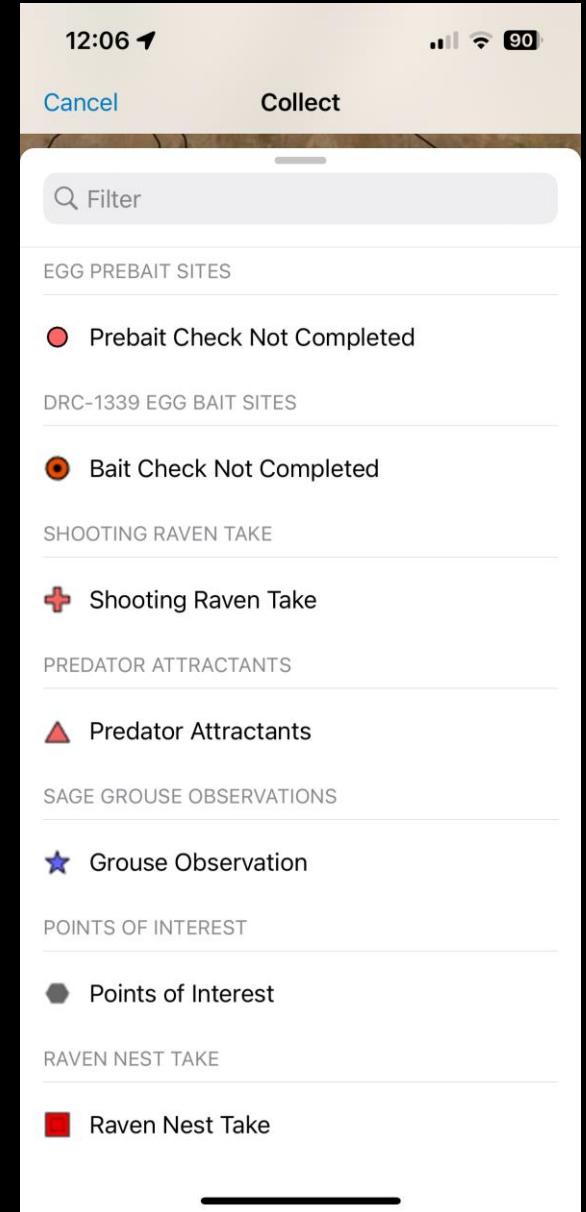
**2024 – NDF Humboldt Conservation Camp,
Winnemucca**



Data Collection

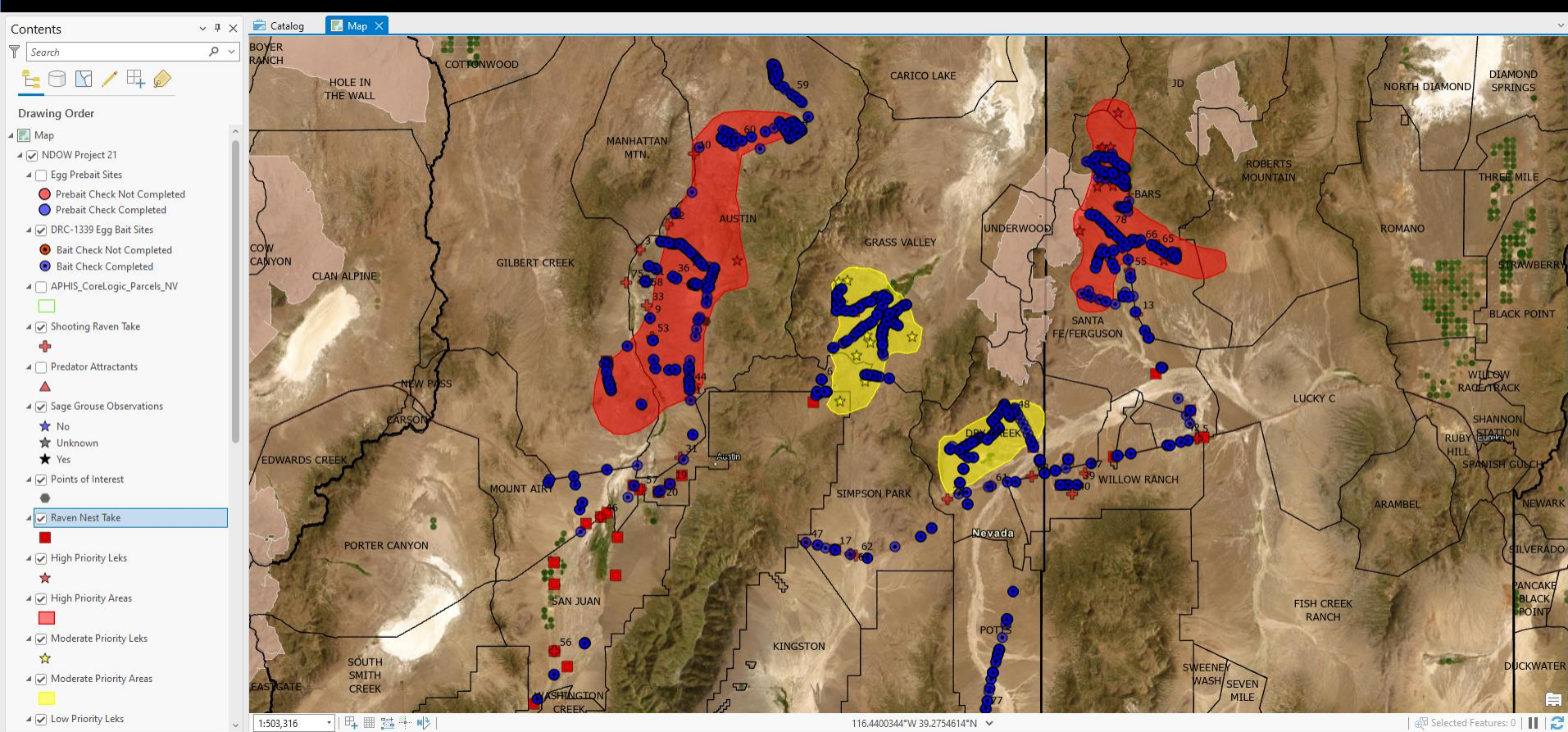


ESRI Field Maps app
Mobile real time data entry
Avoid transcription errors
Team communication
Understand land ownership
Avoid sensitive areas: WAs/WSAs/ACECs



Filter

- EGG PREBAIT SITES
 - Prebait Check Not Completed
- DRC-1339 EGG BAIT SITES
 - Bait Check Not Completed
- SHOOTING RAVEN TAKE
 - Shooting Raven Take
- PREDATOR ATTRACTANTS
 - Predator Attractants
- SAGE GROUSE OBSERVATIONS
 - Grouse Observation
- POINTS OF INTEREST
 - Points of Interest
- RAVEN NEST TAKE
 - Raven Nest Take



Spatial/temporal data capture

Used for real time operational activities and take reporting

Data set available for future research

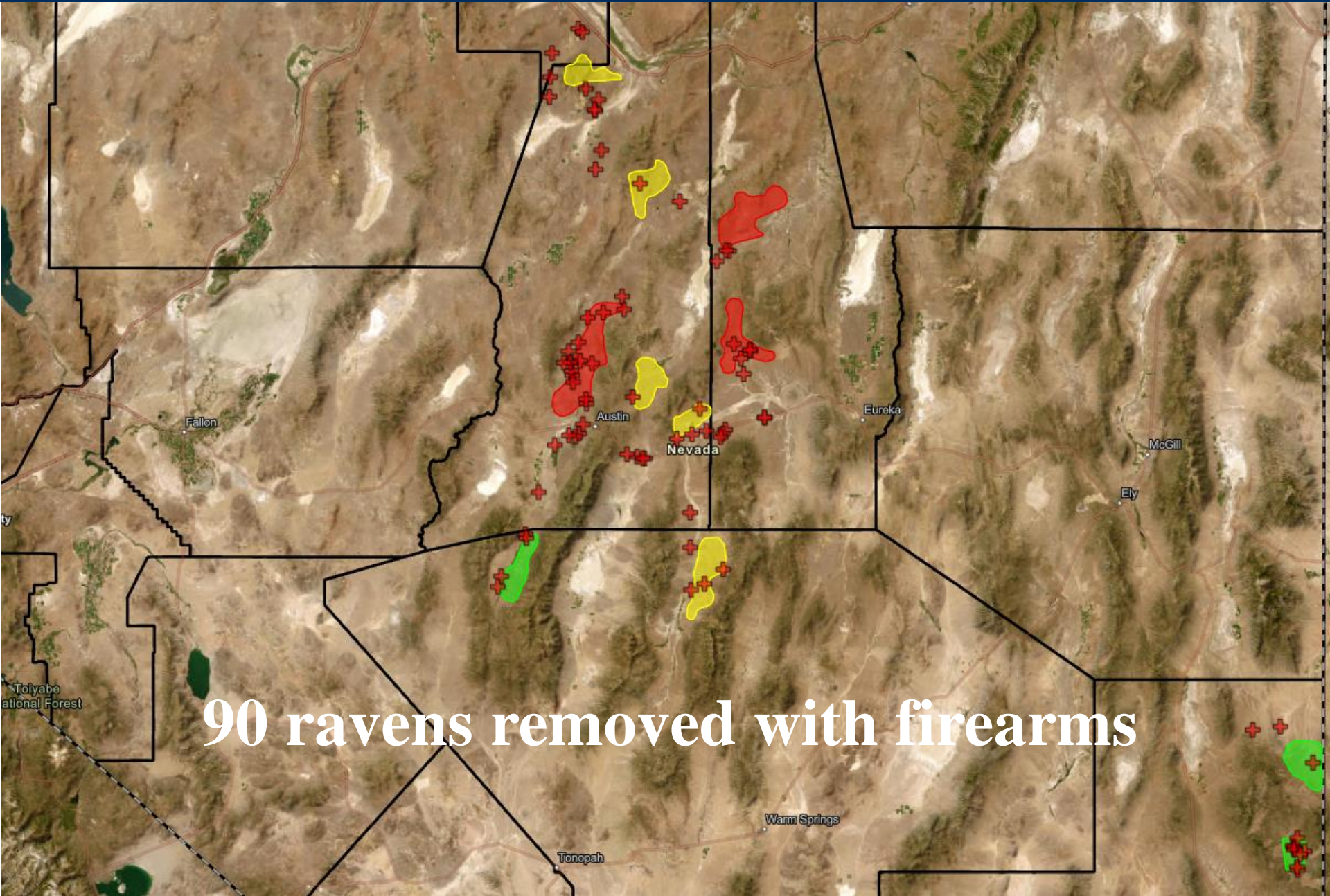


- ✎ **6 staff members – 4 teams**
- ✎ **Team Austin - 2 members**
- ✎ **Team Battle Mountain/Winnemucca - 2 members**
- ✎ **Team Elko – 1 member**
- ✎ **Team Ely – 1 member**
- ✎ **2145 total staff hours spent on this project**
- ✎ **February – June 2023**

- **12,992 egg baits placed (259.84 g)**
- **11,233 (86.5%) either partially or wholly consumed/missing (presumptive take)**
- **1,759 (13.5%) baits recovered/untouched**
- **Estimated 4,890 ravens removed with DRC-1339**
- **40 instances of documented noninjurious nontarget take**



Results - Shooting



90 ravens removed with firearms

- **Game cameras, sign or direct observation**
- **Noninjurious to mammals**
- **Small sampling with game cameras (n=100)**
- **40 instances**
 - **22 – Coyote**
 - **9 – Fox**
 - **7 – Rodent**
 - **Other – 2 (one instance included a flooded area)**





United States Department of Agriculture

Results – NT Observations



MOULTRIE

○ 69 °F

CAMERA 5

22 APR 2023 04:33PM

MOULTRIE

○ 84 °F

CAMERA 1

18 MAY 2023 06:16PM

- 
- **Early season access (snow load and poor road conditions)**
 - **RRHL surveys time consuming**
 - **Housing – BLM Fire Housing ended May 1**
 - **The need for a GIS Cartographer; architecture and data scrubbing/management**
 - **Permitting constraints**
 - **Seasonal employee recruiting – got 2, need 4**

- **Utilize roads for egg treatments**
- **More game cameras**
- **Availability of alternative food sources should change control strategy**
- **Near real-time data entry/analysis for compliance reporting**
- **Refine RRHL survey locations**
- **Eggs are expensive amid AI outbreaks!**
- **Opportunistic shooting is more target specific, but laborious (can't shoot our way out of this problem!)**

- **More housing options**
- **Off-road equipment (UTVs)**
- **More research**
 - **Better WS model for DRC-1339 take estimation**
 - **How many egg baits does it take to remove one raven in the field?**
 - **Results-driven adaptive management strategies – more monitoring required**
 - **Does fledged SG add to the breeding population?**



Collaboration between WS-NWRC and Utah State University

- The ultimate goal is to improve lethal management of raven populations to benefit Greater sage-grouse, other sagebrush obligate species, and desert tortoise
- We propose to study the use of DRC-1339 by ravens 2024-2027, in the first phase
- This first phase aims to collaborate with ongoing monitoring by USDA/Wildlife Services in Nevada to increase the study's effectiveness
- We will evaluate the rate of DRC-1339 egg removal by ravens using trail camera monitoring. This will provide information regarding use by non-target species.
- We will evaluate the rate of ingestion vs caching by ravens by tagging the eggs using transmitters attached to eggs.
 - This will allow us to determine rate of actual uptake.
 - If cached, how effective is DRC-1339 when it is finally eaten?
 - If cached, do ravens always eat the cache?
- We will monitor raven nests to locate DRC-1339 egg baits and evaluate % consumption.
- Using this information we will aid the adjustment of the DRC-1339 application protocol to increase effectiveness and cost-efficiency



United States Department of Agriculture

Questions?



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