

**Prescott Valley Arizona  
Glassford Hill Pronghorn Capture Success  
& New Southeastern Arizona Beginnings  
January 22-23, 2019**



# NFWF GRANT INTRODUCTION

## 2010-2019

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*“Nothing worthwhile was ever accomplished without the will to start, the enthusiasm to continue and, regardless of temporary obstacles, the persistence to complete.”*

This statement by the late Waite Phillips encapsulates perfectly what you will read in the following pages of the National Fish and Wildlife Foundation (NFWF) final grant report: **“Southeastern Arizona Grasslands Pronghorn Initiative”**. The initiative finds half of its genesis at two Arizona Antelope Foundation (AAF) 5 year strategic planning meetings held in March and July 2010. At those meetings, one of five agreed upon strategies was to: create, fund, and staff a Southeastern Arizona Grasslands Pronghorn Initiative utilizing multi-funding sources. A year earlier, in February 2009, the Tucson Regional Office of the Arizona Game and Fish Department (AGFD) initiated an ad-hoc working group to develop a collaborative regional grasslands conservation and restoration strategy for southeast Arizona. The working group emphasized pronghorn as a focal species, while recognizing the strong potential for a multi-species approach. The group identified itself as the Southeast Arizona Collaborative Grassland Workgroup, which came to be known as the SEAGRASS working group.

Through multiple meetings in 2009 and early 2010, SEAGRASS brought all the interested parties to consensus on March 11, 2010 resulting in a final, group-approved southeastern Arizona pronghorn strategy. It was agreed that the primary goal was to: **Increase Pronghorn population numbers, distribution, and connectiveness**. To accomplish that goal, the strategy included the following six actions:

- 1) **Maintain and improve water distribution of water sources available year-round for pronghorn.**
- 2) **Protect and improve habitat conditions, fawning cover, and available forage for pronghorn.**
- 3) **Maintain and improve pronghorn travel corridor connectivity through cooperation with land management agencies and private or other landowners.**
- 4) **Actively treat and maintain grasslands that have experienced tree and shrub encroachment.**
- 5) **Monitor and increase pronghorn population abundance, distribution, and demographics.**
- 6) **Increase collaborative relationships and opportunities to increase pronghorn population abundance, distribution, and demographics.**

The 5 page Pronghorn Strategy was then submitted on the same date to the National Fish and Wildlife Foundation for inclusion into their evolving 6 species “Sky Islands Grassland Business Plan” which was to include pronghorn as a species of special interest and recovery, and eligible for grant funding. The above six actions were incorporated into our multiple NFWF grant funding requests whose chronology follows:

- 1) 3/30/2010 - Submitted our 1st NFWF Sky Island pre-proposal (not asked for a full proposal).
- 2) 10/13/2010 - Submitted our 2nd NFWF Sky Island pre-proposal (not asked for a full proposal).

- 3) 3/28/2011- Submitted our 3rd NFWF Sky Island pre-proposal (asked for a full proposal).
- 4) 5/31/2011 - Submitted our 1st full proposal for \$775K for 3 years (not approved for funding.)
- 5) 11/2/2011 - Submitted our 2nd full proposal for \$230K for 3 years (accepted for funding.)
- 6) 2/3/2012 - Final grant documents/contracts signed and work begins in earnest (grant covered years 2012 to 2014).
- 7) 1/3/2014 - Amendment #1 executed adding \$200K in grant funds and extending the grant period to 12/31/2017.
- 8) 7/7/2017 - Amendment #2 executed extending the grant period to 12/31/2019.
- 9) 12/31/2019 - Grant period and work ends, financial and performance reports are begun, final report submitted in full on May 29, 2020.

In the interim of this project, the Department of the Interior introduced a new grant opportunity to be administered by the NFWF entitled, “America’s Great Outdoors: Developing the Next Generation of Conservationists”. It was suggested we may want to apply and compete for the limited funding. We submitted our proposal on 1/25/12, asking for \$80K to hire 8 youth between the ages of 18-25 for a 90-day summer program to be administered by the Southwest Conservation Corps. We entitled our grant “Youth and Wildlife Conservation at Las Cienegas Grasslands”. Of over 300 applicants, we ranked 45<sup>th</sup> but funding ran out at number 30.

Undaunted, we applied again on 1/18/2013 and finished in the top tier to receive full funding at \$80K to be matched by \$80K. The success and details of that separate grant can be read in the Sonoita Herd Zone narrative.

In the aggregate, the 3 grants totaled \$510K. These funds were matched in-kind by:

- 1) \$245K - Rancher/landowner labor, equipment, and materials.
- 2) \$337K - AAF labor, travel, food, equipment, and materials.
- 3) \$569K - Habitat Partnership Funds and other project cash match
- 4) \$80K - Pima County Open Space Conservation land-acquisition

\$1.231M - Total In-kind match

+

\$510K - NFWF Grant funds

**\$1.741M - Final project financial total**

As important as the funding needed to carry out the multi-year project was, it was equally important that the AAF board understand the six different herd zones in which we would be working. Thus on the 2<sup>nd</sup> and 3<sup>rd</sup> of April 2011, a two-day field trip beginning on the Sonoita Plains and ending on the Bonita Grasslands was attended by the entire board. During this tour, five of the six project herd zones were visited. Those six herd zones are:

- 1) Elgin-Sonoita-Las Cienegas Plains Herd Zone (North & South)
- 2) San Rafael Valley Herd Zone

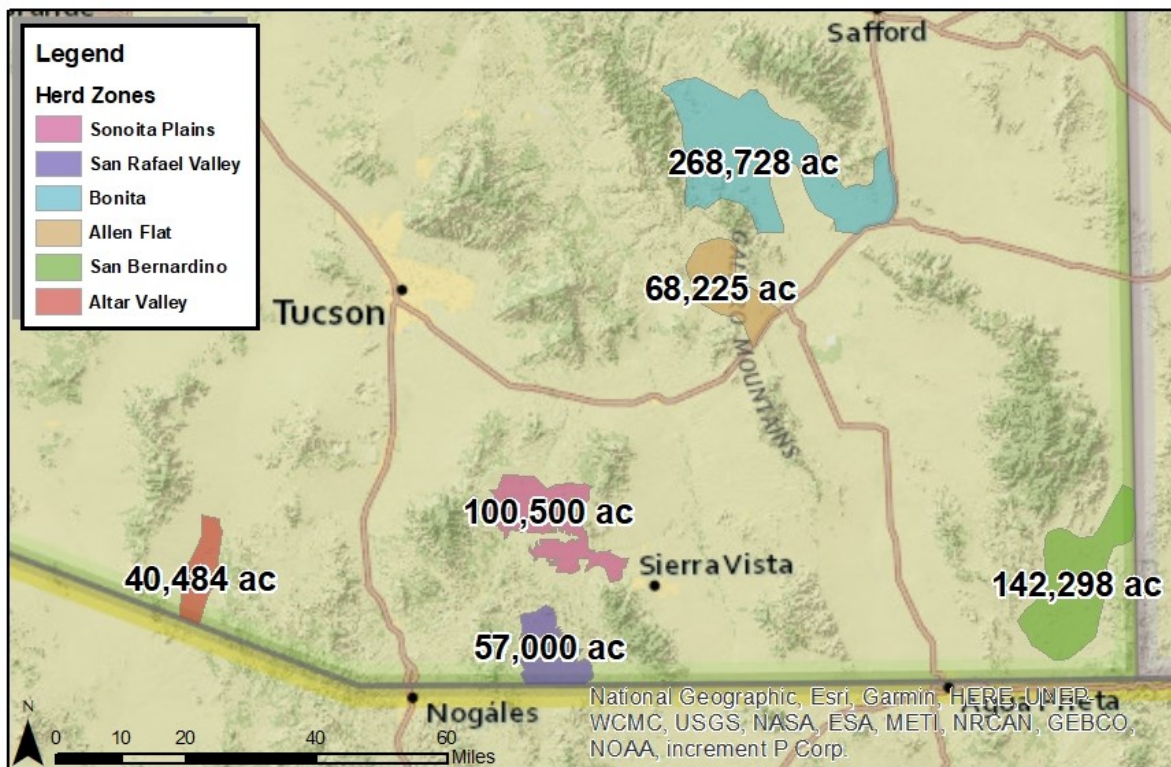


- 3) Bonita Herd Zone
- 4) Allen Flat Herd Zone
- 5) San Bernardino Valley Herd Zone
- 6) Altar Valley Herd Zone

After this field trip, and armed with the aforementioned NFWF core grant funding, AAF and partners accomplished the following between 2012 and 2019:

- Pronghorn connectivity was improved on 191,800 acres in 6 herd zones through 27 fence projects, modifying 105 miles of fencing.
- The majority of that work was accomplished by 769 volunteers who drove 185,517 miles and donated 13,270 hours of labor. University and high school students, as well as Boy Scouts participated in 14 of the fence modification projects.
- Eleven grasslands projects completed in 4 herd zones restored 7,874 acres of grasslands through burning, mesquite grubbing, and spot treatments with herbicides.
- Thirteen water projects were completed to provide year-around water distribution and security in 4 herd zones.
- Ninety-five (95) pronghorn were transplanted to supplement 6 subpopulations. The pronghorn population increased in those subpopulations by a minimum of 548 animals as of August 2019.
- Meeting the minimum viable population objective of 125 animals in 3 of the 6 subpopulations.
- A long-term GIS data base, including 658 total layers for each of the 6 herd zones, was established to monitor the pronghorn and habitat changes.

Finally, none of this would have been possible without the AAF Board, volunteers, ranchers, agencies, and cooperators outlined in the following acknowledgements section.





# ACKNOWLEDGEMENTS

*Teamwork is the ability to work together toward a common vision. The ability to direct individual accomplishments toward organizational objectives. It is the fuel that allows common people to attain uncommon results." – Andrew Carnegie*

*(Note: these lists may not be all inclusive)*

## **ARIZONA ANTELOPE FOUNDATION & FREQUENT VOLUNTEERS:**

Warren Adams, Mark Akins, Jason Angell, Tom Amparano, Frank Armor, Ward Arnston, Larry Audsley, Lani Beach, Cameron Becker, Bobby Bido, Ray Blanchard, Art Boswell, Mark Boswell, Gary Boyer, Dave Breeden, Dave Brown, Robert & Conner Bueche, Joelle Buffa, John Carr, Steve Clark, Roger Cogan, Ken & Kathy Cook, Jon Coppa, Eddy Corona, Dave Cruce, Ron Day, Glen & Betty Dickens, Norris Dodd, Rene Dube, Glenn Durham, Mike Ebright, Chad Elliott, Ray Emmerich, Pat Frawley, Joey & Tom Fuller, Brian George, Greg Godbehere, Jerry Guevin, Katie Hansforth, Will Hayes, Clay Hernandez, Bob Hernbrode, Terry Herndon, Phil Herrera, Roy Hester, Bill Hoopes, Lou Horvath, Bernice & Gene Isaacs, Kara Jensen, Johnny Johnson, Ken Johnson, Robert Joos, Sherry Kapaldo, Wayne Kaiser, Bill & Mary Keebler, Linda Kennedy, Bill Kibbe, Loren Krebs, Al Krutz, Dave Laird, Tom Lauderback, Jim Lawrence, Jay & Connie Leadabrand, Quentin Lewton, Jim Littlejohn, Richard Marsh, Dale Mass, Zack May, Jim McCasland, Bill McClendon, Art & Allen McGinty, Ken Meadors, Pete Mendoza, Janet Millard, John Millican, Sue Moeller, Mike Morales, Clyde Morris, Ben Morrison, Jay Morrison, Don Neff, Cliff & Lynn Nystrom, Richard Ockenfels, Laura Olais, Oscar Oland, Janet & Andrew Oldak, Caroline Patrick, Joe-Bill Pickrell, William Pinkerton, Earl Polvent, Mallary Rae, Clay Ripley, Dan Robinett, Jordan Rolfe, Richard Roller, Fritz Sawyer, Terry Schupp, Bev & Lee Showalter, Kent Smith, Barry & Andy Sopher, Tom Spalding, Harley Shaw, Netzin Steklis, Sheridan Stone, Shane & Jody Stuart, Al & Marsha Sue, Tice Supplee, Brian & Connie Taylor, Frank Tenent, Darrell & Kolin Tersey, Mark Tervo, Kyle Thompson, Steve Tritz, Jim & Tracy Unmacht, Robert Velasco, Chad Villamore, Tom Waddell, Daniel Ward, Anna Welch, Bill Werner, Steve Williams, Anita Willis, Sandra Wolf, Darrel Wood, and Ron Yee

## **ARIZONA GAME & FISH DEPARTMENT:**

Brian Aragon, George Andrejko, Duane Aubuchon, Josh Avey, John Bacorn, Tom Bagley, Matt Braun, Kirby Bristow, Elliott Bundgaard, Erin Butler, Dave Cagle, Troy Christensen, Jennifer Cordova, Gina Corwin, Clayton Crowder, Dustin Darveau, Kyle Dutro, Al Eiden, Jered Ellingson, Justin Espino, Dennis Fogle, Brandon Folex, Jeremiah Fountain, Jake Fouser, Mark Freiberg, Brad Fulk, Jeff Gagnon, Sarah Gandaria, Virginia Goldsbury, Gilbert Gonzales, Ruth Gregory, Dale Hajek, Mark Hart, George Hayes, Jim Heffelfinger, Heather Heimann, Spud Hester, Holly Hicks, Velma Holt, April Howard, Kimberly Huber, Cody Johnston, Anne Justice-Allen, Danielle Kimas, Karen Klima, AJ Lander, Rick Langley, Shannon Lawrence, Will Lemon, Chad Loberg, Carol Lynde, Dave Majure, Bryan Marshall, Ben McClure, Aaron Miller, Amber Munig, John O'Dell, Brittney Oleson, Matt Pelto, Larry Phoenix, Scott Poppenberger, Ken Pitzlin,

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*(ARIZONA GAME & FISH DEPARTMENT CONTINUED)*

Haley Plunkett, Mike Richens, Ray Schweinsburg, Noah Silva, Devin Skinner, Jeremy Smith, Tim Snow, Scott Sprague, Dan Sturla, Kristin Terpening, Ron Thompson, Darren Tucker, Rana Tucker, Bill Vanpelt, Raul Vega, Brian Wakeling, Matthew Walton, Dana Warneke, Micah White, John Windes, Len Wood, and Wade Zarlingo

### **HABITAT PARTNERSHIP NGOs:**

Arizona Deer Association  
Arizona Elk Society  
Arizona Mule Deer Foundation  
Arizona Wildlife Federation  
National Wild Turkey Federation – Huachuca Gould’s Chapter  
Rocky Mountain Mule Deer Foundation  
Safari Club – Tucson Chapter  
Quail Forever – Southern Arizona Chapter  
South Eastern Arizona Sportsmen Club – Safford  
Sportsmen for Wildlife Conservation – License Plate Conservation Fund

### **RANCHERS / LANDOWNERS / LESSEES:**

#### **Allen Flat:**

Cody Resor – Dobson Cattle; Scott Stratton – Dos S Land and Cattle; and Larrie and Lori Todd – Warbonnet Ranch

#### **Bonita:**

Brent and Kimberly Haas – KJ/A Drag Ranch; Mark and Shelly Michaels – M Triangle/Black Ranch; Jesse Davis – Sierra Bonita/Lightning Ranch; Tim Robinson & Dustin Todd – O Bar O Ranch; Kolin and Robert Kramme – Double 11 Ranch, Jeff Homack Sr. and Jeff Homack Jr. – Bonita Ranch and Jay Whetten – 76 Ranch

#### **San Bernardino Valley:**

Gregg Gibbons and Ed Ashurst – Ten X Ranch; Warner Glenn and Wendy Glenn-Kimbrow – Malpai Ranch, and Travis Nevins – Geronimo Ranch

#### **Sonoita:**

Ian Tomlinson – Vera Earl Ranch; Bill and Linda Brake – Rose Tree Ranch; Al Wilcox – Rose Tree Ranch; Rebecca Smith – Rebecca Smith Ranch; Janet Thompson – Jolly Pasture; Ben Brophy, Managing Partner – Babacomari Ranch; Ellen and Joe Lynn Williams, Ranch Managers and Managing Partner – Babacomari Ranch; Linda Kennedy, Appleton-Whittell Research Ranch – Audubon Arizona, and Corky Quiroga – Jelks Ranch

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## **SOUTHWEST CONSERVATION CORPS YOUTH:**

Rafael Delara, Michael Giordano, Raquel Iragoyen-Au, Jorge Marin, Rachael More-Hla, Max Mazzella, James Pitts, and Allison Rosengren

## **LAND MANAGEMENT & OTHER GROUPS & PERSONNEL:**

Altar Valley Conservation Alliance – Sarah King and Kyle Thompson  
American Outdoor Experience – Jordan Rolfe  
Arizona Department of Corrections – Douglas  
Arizona Land and Water Trust – Cameron Becker, Liz Petterson  
Arizona State Land Department – Cody Hatfield  
Arizona Department of Transportation – Jerry James  
Arizona State University, College of Integrative Sciences & Arts – Stan Cunningham  
Arizona State University Wildlife and Restoration Student Association – Katie Hansforth  
Audubon Arizona – Linda Kennedy and Tice Supplee  
Borderlands Restoration Group – Ron Pulliam  
Boy Scouts of America Troop #609 – Luke Horton  
Bureau of Land Management – Tucson Field Office & Las Cienegas National  
Conservation Area – Dan Quintana and Karen Simms  
Cienega Watershed Partnership  
Cochise County Community Foundation  
Coronado National Forest – Glenn Fredrickson  
Empire Ranch Foundation  
Friends of the Buenos Aires Wildlife Refuge – Rita Rutledge  
Fort Huachuca – Sheridan Stone  
Hereford District Natural Resource Conservation District – John Ladd  
Malpai Borderlands Group – Wendy Glenn  
Natural Resource Conservation Service – Emilio Carrillo, Alisha Phipps, Wilma  
Renken, and Chase Skaarer  
Pima County Sonoran Conservation Plan & Conservation Lands System – Kerry Baldwin  
Sentinel Landscape Restoration Partnership – Jerry Payne  
Singing Valley Homeowners Association – Alison Bunting  
Sonoita-Elgin Fire Department – Katie Goodwin  
Sonoran Joint Adventure  
Southwestern Conservation Corps  
The Nature Conservancy – Gita Bodner and Ron Day  
Therapeutic Ranch for Animals and Kids – Range Riders – Wulf Dieter, Caitlin Kelly, and  
Netzin Steklis  
Tombstone Highschool Future Farmers of America – Caroline Patrick (AAF)  
Tucson Audubon Society  
University of Arizona Fish and Wildlife Society – Betsy Grubb and Ben Morrison,  
University of Arizona, School of Renewable Natural Resources – Sarah Hale and John  
Koprowski  
U. S. Fish and Wildlife Service, Partners Coordinators – Kris Randall and Jennifer Kaplin  
U.S. Fish and Wildlife Service, Buenos Aires National Wildlife Refuge – Stan Culling  
Wofford College of Environmental Studies – Karen Gravely

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## KEY BUSINESSES:

Ajax Barricade Company, La Hacienda de Sonoita B&B, Lightning Ridge Cellars, Rancho Rossa Vineyards, Stan's Fence, Stronghold Feed and Supply, and Roto Rooter – Sierra Vista

# Final Programmatic Report Narrative

**Instructions:** Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the on-line final programmatic report task as instructed.

## 1. Summary of Accomplishments

- In four to five sentences, provide a brief summary of the project's key accomplishments and outcomes that were observed or measured.

Pronghorn connectivity was improved on 191,800 acres in 6 herd zones through 27 fence projects, modifying 105 miles of fencing. The majority of that work was accomplished by 769 volunteers who drove 185,517 miles and donated 13,270 hours of labor. University and high school students, as well as Boy Scouts participated in 14 of the fence modification projects. Eleven grasslands projects, completed in 4 herd zones, restored 7,874 acres of grasslands through burning, mesquite grubbing, and spot treatments with herbicides. Thirteen water projects were completed to provide year-around water distribution and security in 4 herd zones. Ninety-five (95) pronghorn were transplanted to supplement 6 subpopulations. The pronghorn population increased in those subpopulations by a minimum of 548 animals as of August 2019; meeting the minimum viable population objective of 125 animals in 3 of the 6 subpopulations. A long-term GIS data base, including 658 total layers for each of the 6 herd zones, was established to monitor the pronghorn and habitat changes.

## 2. Project Activities & Outcomes

### Activities

- Describe and quantify (using the approved metrics referenced in your grant agreement) the primary activities conducted during this grant

All of our activities were driven by the grant objectives at each of the 6-subpopulation habitat zones located in southeastern Arizona. We refer to these as Herd Zones and that is how this 8-year grant report is presented with all of the activities that occurred in the individual herd zones presented by category and date. Those categories individually and in summary leading to the grants final accomplishments are presented by; 1. Projects, water, and fences 2. Grasslands acres restored and 3. Population enhancements, surveys and increases. The tool used to graphically display evidence of those accomplishments by herd zone are a series of detailed color GIS maps included within each zone report.

- Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.

We succeeded in cementing long-term rancher/landowner relations and interest in the pronghorn on their private and lease properties. We also made permanent at a reduced number of hours the contract Field Manager position to be paid by AAF annual operating funds. This to keep the project momentum we have established with those rancher/landowners and to write funding grants and to prioritize the expenditure of our limited annual antelope Habitat Partnership Funds (HPC).

- Briefly explain discrepancies between the activities conducted during the grant and the activities agreed upon in your grant agreement.

Grant dollars were restricted to fence work and supplies, grassland restoration activities and herbicides, the purchase and use of collars on transplanted pronghorn and contract GIS and Field Manager expenses. They were not allowed to be spent on water development/improvements, targeted seasonal fawn enhancements using coyote control, population surveys/transplants or workshops and outreach. These additional activities to meet each individual herd zones population objective were non-the-less essential to the grants success at achieving the outcomes described in the following section. Those other funds and the value of donated volunteer hours/mileage and landowner contributions totaled \$1,150,623 thus allowing us to exceed every established metric. The final grant total including match and the grant's \$430,000 equal \$1,580,623.

### **Outcomes**

- Describe and quantify progress towards achieving the project outcomes described in your grant agreement. (Quantify using the approved metrics referenced in your grant agreement or by using more relevant metrics not included in the application.)

After our 8-years we are pleased to have exceeded all of the key outcomes. The geodata base did not exist prior to the grant. It is now exhaustive in its detail for the 658 layers key to managing pronghorn now and in prioritizing future habitat work or grassland maintenance required. At the grants close in December 2019 six subpopulations were increased in by a minimum 548 animals, each one was genetically augmented with translocated pronghorn and 3 of the subpopulations now exceed the minimum desired population target of 125 animals. Two of the 3 remaining subpopulations now have a minimum of 70 animals each. The entire Sonoita Plains pronghorn are now considered to be a single meta-population occupying 100,500 acres and number a minimum of 250 animals. Our grants goal of 5,000 acres of grassland restoration was exceeded and we accomplished 7,874 acres. Landowner/rancher relations have been permanently improved on 20 different ranches throughout all 6 subpopulation herd zones.

- Briefly explain discrepancies between what actually happened compared to what was anticipated to happen.

We had no identified discrepancies. That stated, we would not have achieved the final results had we not received the 2-year grant extension from 2017-19 to continue to do the work and to finish spending the remaining grant funds from the \$430K grant award. Many of our most measurable grassland acres and pronghorn population increases occurred during the grants final 2-year time frame.

### 3. Lessons Learned

Describe the key lessons learned from this project, such as the least and most effective conservation practices or notable aspects of the project's methods, monitoring, or results. How could other conservation organizations adapt their projects to build upon some of these key lessons about what worked best and what did not?

- ⇒ Begin with the end in mind.
- ⇒ Develop consensus from all partners before applying for the grant or beginning the work.
- ⇒ Have a clearly defined set of objectives and outcomes that are measurable and reportable at the ground level, by work project, by herd zone, and by year.
- ⇒ Include the central and regional offices of the state wildlife agency (in our case the Arizona Game and Fish Department) at the front end of the process. We utilized AGFD's statewide goals and objectives for pronghorn management to provide the framework for our project proposal, adapting it to the habitats and pronghorn herd zones in southeastern Arizona. We also used their ad-hoc working committee, the *Southeastern Arizona Grasslands Working Group* (SEAGRASS) to develop the consensus for the project's goals and objectives.
- ⇒ Hire qualified and motivated Field and GIS managers under contract for \$30 per hour. Contractors should be accountable for their actions, proactive in the execution of their various tasks, and provide detailed monthly reports about project activities and outcomes.
- ⇒ Hire a Field Manager that can relate to, and speak the language of, landowners. The field manager should not be shy about needing to make repeated requests to ranchers that own critical linkages and/or key habitats that need fence modifications or rebuilding. The Field Manager should also deliver contract materials and/or services on time. *Note: We hired a just-retired AGFD District wildlife manager with 35 years of experience in southeastern Arizona, and who had responsibility for pronghorn management herd zones throughout his 35-year career.*
- ⇒ The grant administrator must have the business, financial, biological, communication and people skills to motivate, lead, and inspire staff, agency personnel and the NGO's Board and volunteers. *Note: In our case that individual has an MBA, is a Certified Wildlife Biologist, was serving as Vice President of the AAF, was a retired CFO for the AGFD, and was willing to volunteer all of his hours for 8 years.*
- ⇒ Landowners, ranchers, and lessees must be approached with a win-win or no deal attitude when requesting improvements or changes to their resources on behalf of the resident pronghorn. In determining the needed improvements, the landowners must realize how also they benefit from the work. *Examples in our case include: Providing improvements and maintenance on a fence while it is being modified to make it pronghorn friendly; Designing grassland restoration projects to be equally valuable to livestock as well as pronghorn; Creating improved water security for both livestock and wildlife by adding water storage, solarizing windmill wells, and increasing water lines and troughs.*



- ⇒ Sharing project costs with landowners, ranchers, and lessees is critical. We always attempted to negotiate a minimum 50-50 agreement using both hard dollars and in-kind labor, materials, and equipment.
- ⇒ Utilize and nurture volunteers. Volunteer labor was an invaluable contribution to the ultimate success of this project. The miles of fence they modified helped us exceed the grant's connectivity objective of 100,000 acres. The AAF did an outstanding job at providing suitable camp sites, meals, equipment, toilets, and esprit de corps for each and every project weekend inducing further participation at upcoming fence projects.
- ⇒ Work in concert with land management agencies, conservation organizations, and public working groups to develop collaboration and achieve trust. Toward this effort, provide technical and professional input during the initiation of large-scale habitat enhancement plans. *Examples include: We worked directly with the Bureau of Land Management (BLM) in the development of an EA to inform prescribed fire plans across an array of public, private, and state lands; We coordinated communications between landowners and the Natural Resources Conservation Service (NRCS) about grassland restoration protocols and prescriptions on differing ecological habitat types to enhance diversity for grassland wildlife species.*
- ⇒ Provide educational opportunities and benefits to generate community-based awareness and support by partnering with local school districts, Universities, Boy Scouts, and other youth groups. Include this educational element in grant development. *Examples include partnering with the Southwest Conservation Corp for fence modification work, providing an Eagle Scout with a relevant project, involving Tombstone High School's FFA students in a pronghorn ecological study, U of A wildlife student fence project participation and a university student "Pronghorn Values" survey in Sonoita/Elgin.*
- ⇒ Plan for, develop, incorporate, and update GIS mapping to identify project needs, movement bottle necks, and corridors.
- ⇒ Continue to monitor projects over the long term to determine maintenance needs and identify best management practices and treatment methods to continue to meet restoration objectives.
- ⇒ Dedicate long-term funding to on-going habitat maintenance projects.

#### **4. Dissemination**

Briefly identify any dissemination of lessons learned or other project results to external audiences, such as the public or other conservation organizations.

On 13 occasions we participated in or made formal presentations at multiple workshops and/or opportunities to present grant progress. Please see that detail regarding our dissemination on pages 26-30 in the Elgin-Sonoita-Las Cienegas Plains Herd Zone report entitled "*Workshops-Outreach*". Dozens of grant related project articles were published in the AAF's quarterly magazine the *Pronghorn* from 2012-19; review link; <https://azantelope.org/Magazine>

The AGFD produced an award winning 2015 documentary entitled *A Triumph for Pronghorn Antelope* capturing the grants efforts up to 2015 on the Sonoita Plains herd zone, link; <https://www.youtube.com/watch?v=Bb4pyyHzs6Y&feature=youtu.be>

Also see the 2019 AGFD produced You Tube entitled *A New Home For Prescott Valley Pronghorn*, link; <https://www.youtube.com/watch?v=ZOdjpAZhgxQ>

The grant contributed funding in 2017 to reprint *Bringing Birds Home* in partnership with the Arizona Antelope Foundation, Arizona Game and Fish Department Audubon Arizona, Sonoran Joint Adventure, and the Tucson Audubon Society.

A Sonoita *Pronghorn Fence Inventory Trimble Protocol* was developed in 2012 by the summer Range Riders youth program in cooperation with Arizona Game and Fish Department.

## **5. Project Documents**

Include in your final programmatic report, via the Uploads section of this task, the following:

Please note in the uploads section 6 different detailed *Herd Zone Reports* entitled:

- 1) Elgin-Sonoita-Las Cienegas Plains Herd Zone (North & South)
- 2) San Rafael Valley Herd Zone
- 3) Bonita Herd Zone
- 4) Allen Flat Herd Zone
- 5) San Bernardino Valley Herd Zone
- 6) Altar Valley Herd Zone

These are organized in the following sections:

- ◇ Overview
- ◇ Fence Projects
- ◇ Water Projects
- ◇ Grassland Projects
- ◇ Youth/Projects Involvement (Elgin-Sonoita-Las Cienegas Plains only)
- ◇ Workshops/Outreach (Elgin-Sonoita-Las Cienegas Plains only)
- ◇ Human Dimensions Survey (Elgin-Sonoita-Las Cienegas Plains only)
- ◇ Pronghorn Population Surveys (Elgin-Sonoita-Las Cienegas Plains/Allen Flat only)
- ◇ Pronghorn Population Transplants & Enhancements
- ◇ Summary

Each of these 6 Herd Zone reports are exhaustive in their category and project detail and include the appropriate detailed GIS data maps and relevant example photographs.

## **INDEX**

1. Sonoita Plains North/South Herd Zone
2. San Rafael Valley Herd Zone
3. Bonita Herd Zone
4. Allen Flat Herd Zone
5. San Bernardino Herd Zone
6. Altar Valley Herd Zone

# GLOSSARY

<b>Connectivity Permeability</b>	Pronghorn habitat and grasslands within a common herd zone are considered connected and permeable if the dividing roadway right-of-way (connected) or the interior livestock pasture fences (permeable) meet the prescribed pronghorn friendly fence standard allowing pronghorn to move freely and unobstructed between and among pastures.
<b>Crossing Zone</b>	A known and identified path or area that resident pronghorn prefer to use to cross paved or maintained roadways.
<b>Fawning Zone</b>	A preferred grassland use area occupied by pronghorn does during peak fawning/birthing season (April 15-June 30) within 1-mile of a water point.
<b>Fence Modification</b>	The act of organized volunteers, contractors, or landowners modifying or removing and rebuilding a 5-strand fence to a wildlife standard 4-strand fence with the smooth bottom wire located at 16", 18", or 20" from the ground.
<b>Fence Standard</b>	The spacing and type of wire that makes a highway right-of-way or grazing pasture fence wildlife friendly. For pronghorn, the bottom wire should be smooth wire set at a minimum of 16" from the ground, but preferably 18"-20".
<b>Grubbing</b>	The removal via digging of invasive mesquite trees or shrubs with the use of a large excavator often with a specialized bucket and attachment.
<b>Habitat Partnership Committee Funds</b>	Dollars derived from the sale and auction of 3-antelope tags. These funds are allocated through the HPC Program by collaboration between the AGFD and Arizona's wildlife conservation organizations that market and sell the tags. Once annual project proposals are submitted, the AGFD coordinates with these wildlife conservation organizations and funding is allocated to the projects that provide the most benefit to big game species in Arizona.
<b>Herd Zone</b>	A geographically connected grassland habitat in which resident individual pronghorn can seasonally interact, reproduce, and are recognized as part of a common gene pool.
<b>Neonate Life Stage</b>	The 1-4-week life stage of a newborn pronghorn fawn during which time it hides itself 24 hours a day and is visited by the mother for feeding and grooming twice a day.



<b>Nursery Herd</b>	An important life stage during which does and their fawns group together into small herds for the young pronghorn to begin to “learn” how be a pronghorn and interact socially. In SE AZ populations, pronghorn most commonly begin to gather into nursery herds by July.
<b>Prescribed Burning</b>	Using a controlled burn plan and operation to burn and improve grassland fecundity and reduce shrubs and young mesquites. Very favorable for creating pronghorn forage.
<b>Pronghorn Neonate</b>	A newborn pronghorn fawn less than 1 month of age.
<b>Pronghorn Predation</b>	During the 1-4-week neonate life stage, the newborn fawn is most vulnerable to predation by coyotes, bobcats, and raptors. Studies in AZ, NM, and TX have verified fawn losses in this life stage as high as 80-90%.
<b>Reintroduction Translocation</b>	The capture of pronghorn from healthy and robust populations, and subsequent release into suitable vacant or occupied pronghorn habitat with the objectives to both increase the resident population and improve its long-term genetic viability.
<b>Saturation Survey</b>	A survey completed on foot or from vehicles between sunrise and 10:00 AM on a specified day in July by organized volunteers and wildlife biologists, each within an assigned “survey area.” During the survey, participants count and sex adult pronghorn and surviving newborn fawns.
<b>Survey</b>	The official annual count of pronghorn populations completed by AGFD in August via fixed-wing aircraft, during which adult pronghorn and surviving newborn fawns are counted and sexed.
<b>Travel Corridor</b>	A known geographic zone or area that, due to fencing or roads, can act as either a barrier or a pathway for resident pronghorn to interconnect larger pieces of pronghorn habitat.
<b>Water Point</b>	A water trough, drinker, or available earthen tank that can be utilized seasonally or year-around by pronghorn.
<b>Water Project</b>	Creating or improving existing pasture water sources such as wells with windmills or earthen water tanks by tank clean out, well solarization, adding water storage, or adding distribution lines to new water points.

## **ELGIN – SONOITA PLAINS NORTH – SOUTH HERD ZONE**

### **Las Cienegas Plains - 100,500 Acres**

#### **OVERVIEW**

#### **South of Highway 82 - Elgin, Sonoita, Babacomari, and Rose Tree Ranches**

Pronghorn were reasonably common on the 31,000-acre Babacomari Ranch in the Mustang plains area when purchased by Frank Brophy Sr. in 1935. By 1949 there were just 4 animals remaining on the western boundary of Ft. Huachuca. In 1975, when Glen Dickens was a wildlife ecology student at the University of Arizona, Mr. Brophy told him about one winter in the early 40s when around 200 pronghorn did their usual north-westward migration to winter in the eastern foothills (Gardner Canyon) of the Santa Rita Mountains. Very few of those animals returned the following spring for fawning and summer breeding on the ranch.

In 1949 and 1951, a total of 100 pronghorn, captured at Antelope Pass / Grapevine Canyon southeast of Flagstaff, were reintroduced by the Arizona Game and Fish Department (AGFD) to the west pasture of Fort Huachuca. Until 1968, up to 40 pronghorn ranged between Fort Huachuca and the Audubon Arizona Research and Babacomari Ranches. Several 5 strand fences (which have since been removed) were constructed in 1968 on the Research Ranch. AGFD Wildlife Manager, John Carr, noted that the new fences stopped free pronghorn movement, causing fragmentation of the herds. This resulted in a smaller, isolated herd in the Babacomari west pasture (18 animals were counted in 2010). Improving genetic diversity and increasing numbers were deemed desirable for this herd zone. To address this, 25 pronghorn were captured near Cimarron, New Mexico in January 2014, and released in the Babacomari West Pasture. Additionally, 6 animals were captured near Prescott, Arizona and released on the Davis Pasture of Rose Tree Ranch. Pronghorn have been absent from the west pasture of Fort Huachuca since 2011.

Connectivity was identified as a significant issue when the grant began in 2012. Both east-west HW 82 and HW 83 south of Sonoita, Arizona were identified as significant movement / connectivity barriers, and fence modifications were badly needed. These highway right-of-way (ROW) fences were modified, along with mesquite removal within ROW corridors from 2015-18 significantly improving motorist and pronghorn safety. A second major connectivity hurdle identified, was the need for a corridor on the western slope of the Mustang Mountains to allow the Babacomari Ranch pronghorn herd to freely interact with the Rose Tree Ranch herd to the north. Due to extensive fencing and urbanization (the town of Sonoita is 6 miles due west), the Mustang's western slope was the last remaining open range available to connect the two herds. This was first addressed pre-grant in 2010, with both ranch boundary allotment fences being modified by the Arizona Antelope Foundation (AAF). Again in 2013 and 2014, fences were modified on the upper Elgin Road and the Woods Ranches. Finally, interior permeability within major pastures on both ranches was addressed with multiple fence modification projects. First in 2013, 7 miles were completed on the Rose Tree Ranch by the Southwest Conservation Corps Youth Team. Later, in 2018 and 2019, fences were modified at multiple locations on the Babacomari Ranch and lands to the south of the ranch boundary. A project in 2012 modified the northwest boundary fence of the Fort Huachuca

west pasture which connected that vacant habitat to the Babacomari Ranch herd zone. In the aggregate these projects modified 30 miles of fence resulting in increasing the connectivity acreage by 44.5 K total acres (see Map #1, page 41). Water security and distribution in key pronghorn movement and fawning habitat was considered lacking and six water projects from 2015 to 2019, funded with Habitat Partnership Conservation (HPC) dollars, addressed this need (see Map #2, page 42).

The grasslands south of HW 82 are considered to be in excellent condition and have not been subject to wide-spread mesquite invasion. This is primarily due to the positive grazing regimes practiced on both the Babacomari and Rose Tree Ranches, as well as the timely and periodic treatment of early growth mesquites by grubbing and regular spot use of herbicides. One 321-acre burn was conducted on tabosa grassland flats on the Babacomari Ranch in 2013, and the area is periodically reburned every 3 to 5 years (see Map #2, page 42).

## **North of Highway 82 - Las Cienegas National Conservation Area and Vera Earl Ranch**

Pronghorn were absent from the Las Cienegas grasslands north of HW 82 after 1946. In 1981, AGFD successfully reintroduced 51 animals, captured near Marfa, Texas. Pronghorn numbers have been stable over the years but generally below the population objective of 125. This is most likely related to drought and predation. In 2001, pronghorn began crossing HW 83 to the west, north, and south of Gardner Canyon and now have well-established core fawning and breeding areas with a resident herd numbering over 50.

Connectivity was identified as a significant issue when the grant began in 2012. Both east-west HW 82 and HW 83 north were identified as significant movement / connectivity barriers, and fence modifications were badly needed. These highway right-of-way fences were modified in 2015 and 2016. The project included right-of-way mesquite removals in 2015 and 2018, all which significantly improved motorist and pronghorn safety. Interior pasture permeability was very limited and 20 miles of fences were modified in the core pronghorn use areas in the summer of 2013 by eight Southwest Conservation Corps (SCC) Youth Team members. They were funded by a separate \$80K NFWF grant entitled “Youth and Wildlife Conservation at Las Cienegas Grasslands Project”. This grant was matched in-kind by Pima County Conservation Open Space funds. In total these three-fence projects modified 25 miles of fence increasing connectivity by 56K acres.

The majority of the zone is secure from urbanization with most of the high-quality habitat owned by the Bureau of Land Management (BLM) and known as the Las Cienegas National Conservation Area. Previous and ongoing grassland restoration through mesquite removals and burns, by the BLM and Vera Earl Ranch, have yielded positive results including expanding pronghorn use patterns. Two grassland projects totaling 1,946 acres were completed in 2014 and 2019 on the Vera Earl Ranch (see Map #2, page 42). Water point distribution and security is considered excellent due to actions and maintenance by the Vera Earl Ranch and BLM.

The development of and continuing efforts in procuring Conservation Easements on Ranches throughout the Sonoita Plains will provide large scale habitat integrity for Pronghorn movement and connectivity.

## **FENCE & MESQUITE RIGHT OF WAY PROJECTS** **(See Map #1 & 2, pages 41-42)**

### ***March 24, 2012 - Fence Modification NW Boundary of Ft. Huachuca***

A successful AAF volunteer fence project was completed by 47 adult and student volunteers on the NW boundary of Fort Huachuca. The group modified 1.4 miles of existing fence resulting in improved pronghorn connectivity on **4,000 acres** of occupied habitat and **8,000 acres** of unoccupied habitat (Ft. Huachuca west pasture). This project plays a part in completing the critical southeastern portion of the overall Sonoita Plains pronghorn corridor improvement project.

### ***May 4, 2013 - Fence Modification and Drinker Repairs Woods Ranch***

A successful AAF volunteer fence project was completed by 48 adult and Tombstone High School student volunteers on the Woods Ranch in the southeastern end of the Sonoita Plains. This crew modified 3 miles of existing fence, installed 2 pronghorn drinkers, and did maintenance on 3 other pronghorn water catchments. This final fence project in this area, combined with others in the immediate zone over the past 18 months, have now improved pronghorn connectivity on **21,168 acres** of occupied habitat.

### ***April 12, 2014 - Fence Modification Upper Elgin Road***

A successful AAF volunteer fence project was completed by 36 volunteers on the Rose Tree Ranch in the southern end of the Sonoita Plains, both east and west of the paved Upper Elgin Road. This crew modified 2.4 miles of existing fence. This fence project on the Elgin Road now allows free crossing for the resident herd of 44 pronghorn from the Davis Pasture to the west to the Mustang Mountains pasture to the east. Immediately after the project, increased pronghorn crossings were observed on both sides of the road. In the following December, the entire winter herd of 44 was observed in the same week on both sides of the Upper Elgin Road.

### ***April 17-19, 2015 - Fence Modification North Highway 83***

A successful AAF volunteer fence project was completed by 42 volunteers and AGFD personnel. The crew modified 2.6 miles of existing highway right-of-way fence east and west of Highway 83, from Sonoita north to the Las Cienegas Ranch Road. This segment of fence encompassed at least 5 documented pronghorn crossing zones and is expected to significantly increase safer pronghorn road crossing opportunities. This project plays a key part in completing the critical northwestern portion of the overall Sonoita Plains pronghorn corridor improvement project.

### ***October 2-4, 2015 - Right-of-Way Mesquite Removal Highway 83***

A successful AAF mesquite tree removal project was completed by 14 volunteers, including AAF and the Arizona Elk Society members, and AGFD and Arizona Department of Transportation (ADOT) personnel. The crew removed 71 mesquite trees at 2 documented pronghorn crossing zones in the highway right-of-way, both east and west of Highway 83, one mile south of the Las Cienegas Ranch Road. This segment of ROW fence was modified to pronghorn standards earlier in April of this year in 5 documented pronghorn crossing zones between the Las Cienegas Ranch Road and Sonoita to the south. This mesquite removal is expected to improve motorist safety and significantly safer pronghorn crossings (see photos, page 46).

### ***April 15-17, 2016 - Fence Modification East-West Highway 82***

A successful AAF volunteer fence project was completed by 45 volunteers and AGFD personnel. The group modified 3.2 miles of existing highway right-of-way fence on both sides of Highway 82 from Sonoita east to the Upper Elgin Road. These segments of fence encompassed 5 known and documented pronghorn crossing zones and are expected to significantly increase safer pronghorn crossing opportunities. This project played a key part in completing the critical central portion of the overall Sonoita Plains pronghorn corridor improvement project. Pronghorn road kills for 2016 were reduced to zero in this zone, down from two the previous year (see photos, page 45).

### ***April 14-15, 2017 - Fence Modification South Highway 83***

Forty-eight volunteers and AGFD personnel modified 1.6 miles of existing highway right-of-way fence east and west of Highway 83, in 4 zones from the Elgin School south for 4 miles. This segment of modified fence will permit pronghorn to explore previously unavailable grassland due west towards the Canelo Hills. This area nets **2,500 acres** of newly connected pronghorn habitat to add to the grant total. It is expected to significantly increase safer highway pronghorn crossing opportunities. This project plays a key part in completing the critical southwestern portion of the overall Sonoita Plains pronghorn corridor improvement project. All this work was completed on Friday, April 14<sup>th</sup>. A separate and second full project was completed on Saturday, April 15<sup>th</sup> in the Babacomari Ranch west pasture north boundary fence. There, the 2 bottom strands of barbed wire fencing were removed and replaced with a single strand of smooth wire at a height of 18 inches. Also, all fence stays and posts were replaced as needed on 3.5 miles of northern pasture boundary fence. This fence had been modified in the past but only included adjusting the bottom strand of barbed wire up to 16 inches. It is now to pronghorn standard with smooth wire and improved height. 100 pronghorn now reside seasonally in this west pasture up from just 17 in 2012. Everyone who worked on both days enjoyed multiple sightings of the resident pronghorn.

## ***May 17-June 17, 2017 – Upper Elgin Road/Babacomari Ranch ROW Fence Rebuild***

The Babacomari Ranch completed a 3-mile fence rebuild along the west side of the Upper Elgin Road utilizing \$24K of Readiness and Environmental Protection Integration funds acquired through a grant completed by Arizona Land and Water Trust. The completion of this upgrade completed the overall ROW fence improvement providing unobstructed Pronghorn movement between the Encino-West Pasture and Jog/Hart Pastures owned by the Babacomari Ranch. The eastern ROW fence was completed by the Babacomari Ranch in 2006. Not only did this fence rebuild allow connectivity to approximately 33 sections, but removed a barrier that had been identified by AAF as a project needed to complete the Pronghorn movement corridor along the Southeastern end of the Sonoita Plains, along the western slope of the Mustang Mountains and north onto the Las Cienegas National Conservation Area.

## ***April 13-15, 2018 - Southeast Sonoita Plains Pasture Fence Projects & 100,000 Acres Completed!***

Another successful AAF fence modification project was completed by 39 volunteers and AGFD personnel. On Friday, the 13<sup>th</sup>, the group modified and repaired a quarter mile section of fence that is an entrance into a newly identified **320 acre** “fawning pasture.” They also modified a 500-foot section of fence on the south end of the Upper Elgin Road allowing new pronghorn access to a **2,400-acre** pasture. Within just 2 weeks of the fence modification project, 17 pronghorn were observed in the 2,400-acre pasture. In early June of the same year, a fawn and mother were observed in this newly accessible pasture. Success! On Saturday, the 24<sup>th</sup>, the crew modified 2 fences, both approximately 0.75 miles in length bordering a horse pasture to the northeast of the 2,400-acre pasture. This work permits pronghorn to pass through the horse pasture to the south and gives them access to a permanent water supply that they could not utilize previously. This modification improved pronghorn access to another **3,000 acres** of habitat. Good news! All 4 of these fence modifications have been caused by pronghorn pioneering suitable habitat areas previously unoccupied. This project is likely a final “capstone” effort and will complete free pronghorn access in the southeastern portion of the Sonoita Plains pronghorn corridor improvement project. Everyone who worked on both days enjoyed multiple sightings of the resident pronghorn. The grant has a goal of improving up to 100,000 acres of “pronghorn habitat connectivity.” **This project added 5,720 acres to put us over that magic total grant mark at 101,901k acres!** (see photos, pages 47-49)

## ***October 11, 2018 - Highway 83 North Right-of-Way Mesquite Removal Project***

A partnership including the Arizona Department of Forestry and Fire Management, the ADOT, the AGFD, the Cochise County Department of Corrections (DOC) and 9 AAF volunteers removed over 100 mesquites from the HW 83 right-of-way. This occurred in 3 different zones where resident pronghorn are choosing to cross the highway where fence modifications occurred in April of 2015. The primary work crew was made up of 19 members of the Cochise County DOC and the Arizona Department of Forestry and Fire Management. All trees were cut



down, smaller branches were chipped on site, and the larger wood hauled away. In addition, the ADOT personnel applied an herbicide to the stumps to insure no regrowth (see photos, page 50).

### ***May 18, 2019 - Elgin Ranch Boundaries Fence Modification***

Eagle Scout candidate, Luke Horton, of Boy Scout Troop (BSA) #609 from Anthem, Arizona, along with 18 other volunteers, had the opportunity to complete a 1.5-mile fence modification project southeast of Elgin, Arizona on the Jelks Ranch. This zone was identified for modification due to the increased winter use by 12 pronghorn in the pasture in 2018. The project improved permeability / connectivity on another **4,000 acres** and allows pronghorn to move south to USFS lands.

## **WATER PROJECTS (See Map #2, page 42)**

### ***April 31, 2015 - Back 30 Water Storage Development - West Slope Mustang Mountains***

A 5,000-gallon storage tank was added to an existing well to provide water security to a new trough in an identified pronghorn / mule deer travel corridor.

### ***March 15, 2016 - Hart Pasture Water Development - Babacomari Ranch***

In a critical pronghorn fawning zone, a new well was drilled, solarized, and plumbed to an existing tank. Following this, 2.1 miles of underground waterline was laid, with two drinkers located at one-mile intervals, improving water distribution on 8 square miles. Pronghorn does immediately began fawning around both new waters.

### ***April 23, 2016 - Schock Well Solar Pump & Panels Retrofit - West Slope Mustang Mountains***

An existing well was solarized as its windmill had failed. This well provides reliable water to three 10,000-gallon storage tanks and five water troughs all in prime pronghorn and mule deer habitat.

### ***July 7, 2017 - Abner Well Water Redevelopment - West Slope Mustang Mountains***

An existing well was solarized and a one-mile buried pipeline with a new trough was installed. This project provides water in a key pronghorn / mule deer corridor and improves water availability to a 1,280-acre pasture bordering the boundaries of the Rose Tree Ranch to the north and the Babacomari Ranch to the south.

## ***June 18, 2019 - Jolly Well Water Storage/Trough & Solar Upgrade - Sonoita Plains South***

The Jolly Well, located 8 miles southeast of Sonoita, received an upgrade from a windmill to a solar powered pump including a new water trough and 2,000 gallons of water storage. The well is in a 320-acre pasture that pronghorn does have been utilizing as a key fawning area from April to June since 2015. The fence leading to this pasture was modified in 2017 as previously outlined (see photos, page 51).

## **GRASSLANDS (See Map #2, page 42)**

### ***March 15 & April 1, 2013 - Sacaton Burn Project - Babacomari Ranch***

Burning was conducted east and north of the main road in Hay Canyon in the west central northern part of the Hart Pasture on the Babacomari Ranch. Three hundred twenty-one (**321 acres**) of sacaton bottom grassland were burned in the project. This location is in a critical pronghorn connectivity path in the southeastern end of the Sonoita Plains. This burn provides additional spring green up for pronghorn for the next 3 to 5 years and is in direct proximity to a planned supplemental pronghorn release scheduled for January, 2014.

### ***April, 2014 - Mesquite Removal - West of Highway 83 on Vera Earl Ranch***

In the southwestern boundary of the Sonoita Plains, **375 acres** of grassland were restored on the Vera Earl Ranch by removal of mesquite. This is a critical pronghorn activity zone at a project cost of \$55.38 per acre, for a total cost \$17,444.

### ***September, 2019 - Herbicide Spot Treatment - Hummel and South Springs Pastures***

The Vera Earl Ranch completed herbicide treatment of young mesquites with Velpar on **1,571 acres** north of Sonoita on both the east and west sides of HW 83. The project was paid for by NFWF grant dollars in the amount of \$10K, Arizona License Plate Wildlife Grant funds in the amount of \$25K, and the ranch owner contributed an additional \$24.4K, for a total project cost of \$59.4K. Both of these pastures now have seasonal year-around use by over 50 pronghorn. This project is expected to maintain the grassland condition of this pasture long into the future, providing continued pronghorn benefits.

## **YOUTH PROJECTS / INVOLVEMENT**

### ***April 12 – May 14, 2012 - Range Riders***

Throughout these 2 months, 5 youth had multiple meetings in the field with AGFD researchers and the AAF's field manager. They were from the program entitled Therapeutic Ranch for Kids and Animals-Range Riders. The youth learned how to use Trimble data recorders for fence standard data collection, and how to recognize pregnant and post parturition pronghorn does in the Las Cienegas pastures. They spent many hours in the field verifying and recording key waypoints related to pronghorn fawning areas and water sources. The youth also created a new detailed fence analysis field guide suitable for publishing (article by Caitlin Kelley, pages 52,53)

### ***May 4, 2013 - AAF Fence Project Involving FFA Participants***

Twelve Tombstone High School FFA student volunteers assisted on the Woods Ranch fence modification project in the southern end of the Sonoita Plains.

### ***June 1 – August 28, 2013 - Youth and Wildlife Conservation at Las Cienegas Grasslands - Grant & Project***

The AAF received an additional \$80K NFWF grant entitled "Youth and Wildlife Conservation at Las Cienegas Grasslands Project." The funding was matched in-kind by the Pima County Land Conservation Fund. For the project, the AAF partnered with the Southwestern Conservation Corps (SCC) who hired and equipped 8 youth to participate in the project. The goal of the project was for youth to accomplish the necessary pronghorn fence modifications on Las Cienegas and to support intensive observation, and mark and recapture efforts on 4 newly established colonies of black tailed prairie dog (BTPD). AAF's field projects manager provided the necessary field coordination and supervision for the 90-day work period. The youth worked for 12 weeks in the summer of 2013, spending half of their time on the BTPD project and half on the pronghorn fence modifications. The crews completed a total of **26.56 miles** of the highest priority fence modification; from 5 strand to 4-strand with the new smooth bottom wire 18 inches above the ground to permit pronghorn crossing. They also reinstalled all required wire stays and posts as required. The project's original fencing goal was to modify or remove at least 20 miles of fence. That goal was exceeded by 6.56 miles or 33%. The goal for acres of pronghorn connectivity was 20,000 acres. The final number came to **45,023 acres**, which exceeded the original goal by 225% (see photos, page 54).

### ***August 7 & 27, 2013 - Youth Mentoring Sessions***

The AAF hosted 2 evening wild game dinners and mentoring sessions for the SCC youth crew and AGFD wildlife biologists. Eight crew members, 2 SCC staff members, 3 BTPD personnel, and 9 biologists from all levels of AGFD participated in the events. Each professional spoke about their career progression. Crew members gave their impressions of the project, the work being accomplished and lessons learned. Crew members were presented with

certificates of appreciation, an official AAF project pin, a tee-shirt, and a hat. Everyone agreed that the entire project was extremely positive and successful for the individuals involved, the SCC, and the accomplishment of project objectives (see photos, page 55).

### ***December 11, 2013 - Tombstone High School FFA Field Trip***

A field trip and project orientation training for Tombstone High School FFA students was conducted at the Rose Tree Ranch. Instructors, 14 students, and personnel from the AAF, AGFD, and NRCS attended. The students and instructors were given an overview of pronghorn translocation and field research needs, as well as data that needed to be collected by the class during the upcoming 2014 work period.

### ***January 15, 2014 - AGFD Pronghorn Release - West Pasture Babacomari Ranch***

Sixteen Tombstone High School FFA student volunteers observed the release of 25 pronghorn on the Babacomari Ranch and 17 in the San Rafael Valley. Multiple press reports were produced.

### ***January 27–29, 2014 - AGFD Prescott Pronghorn Capture***

Ten Tombstone High FFA students assisted in the trap construction and subsequent capture and processing of 8 pronghorn in the Granite Dells area of Prescott. (see AGFD 2015 Award Winning film; *A Triumph for Pronghorn Antelope*);  
<https://www.youtube.com/watch?v=Bb4pyyHzs6Y&feature=youtube>

### ***January – May, 2014 - Tombstone High School Arc-Info Instruction***

AAF's GIS manager, Carolyn Patrick, visited the Tombstone High FFA classroom on 5 occasions to install Arc-Info and instruct students on the basics of the use of GIS, wildlife monitoring, and mapping of critical layers.

### ***April 30, 2014 - Student Field Day – West Pasture Babacomari Ranch***

Six Tombstone High FFA students attended a field day on the Babacomari Ranch west pasture. The group observed pronghorn and discussed water quality and fawning cover.

### ***February, 2015 - Tombstone High School GIS Mapping Instruction***

AAF's GIS manager, Carolyn Patrick, visited the Tombstone High FFA classroom on one occasion to instruct students on the basics of the use of GIS, wildlife monitoring, and mapping of critical layers.

### ***February, April, & May, 2015 - Tombstone High School FFA Field Days***

Fifteen Tombstone High FFA students attended 3 field days over a 3-month period on the Babacomari Ranch west pasture. Students observed pronghorn, took water quality samples, and measured fawning cover.

### ***April – September, 2016 - University of Arizona Wildlife Students Field Work***

Four different University of Arizona wildlife undergraduate students attended two southeastern Arizona fence projects. The students worked and interacted with AAF Board members and AGFD personnel.

### ***April – September, 2017 - University of Arizona Wildlife Students Field Work***

Twelve different University of Arizona wildlife undergraduate students attended two southeastern Arizona fence projects. The students worked and interacted with AAF Board members and AGFD personnel.

### ***May 18, 2019 - Eagle Boy Scout - Elgin Ranch Boundaries Fence Modification***

Eagle Scout candidate, Luke Horton, of Boy Scout Troop #609 from Anthem, Arizona, along with 18 other volunteers, completed a 1.5-mile fence modification project southeast of Elgin, Arizona on the Jelks Ranch. This zone was identified for modification due to the increased winter use by 12 pronghorn in the pasture in 2018. The project improved permeability / connectivity on another **4,000 acres** and allows pronghorn to move south into USFS lands.

## **WORKSHOPS / OUTREACH**

### ***April 6, 2012 - Pronghorn and Fence Standards Permeability Workshop***

AAF hosted a Pronghorn and Fence Standards Permeability Workshop attended by 24 participants in Sonoita, Arizona. Workshop attendees included personnel from the AGFD, AZ State Land Department, AZ Department of Transportation, BLM, Audubon, Fort Huachuca, U of A, and local landowners and land lessees. The workshop reviewed the reasons and need for fence modifications and prioritization, and helped participants understand that the modifications would interconnect previously isolated sub-populations of pronghorn. An overview of the NFWF 8-year grant's intent and AAF's *SE Pronghorn Grasslands Initiative* was presented.

## ***December 10-13, 2012 - Professional Paper Presentation - 25<sup>th</sup> Biennial Western States and Provinces Pronghorn Workshop, Santa Ana Pueblo, New Mexico***

The Arizona Antelope Foundation, along with The Wildlife Society and the New Mexico Game and Fish Department co-sponsored the 25<sup>th</sup> Biennial Western States and Provinces Pronghorn Workshop. The four-day workshop was held at the Santa Ana Pueblo north of Albuquerque and included over 100 participants. Dave Brown and Glen Dickens, both retired AGFD biologists and AAF Board members, attended on behalf of the AAF. The two staffed an AAF booth, discussed the organization's mission and purpose, and provided copies of AAF's quarterly *Pronghorn* magazine to participants. Mr. Brown participated on a panel discussion and Mr. Dickens presented a paper on the *Arizona Antelope Foundation's Southeastern Arizona Grasslands Initiative*.

## ***October, 2012 – AAF / AGFD Prescott Public Meeting Presentation***

The AAF field manager, John Millican, presented the need for new transplanted pronghorn in southeastern Arizona at a public meeting in Prescott, Arizona. Mr. Millican discussed the importance of increasing genetic diversity and removing pronghorn from a herd zone in the Prescott Valley that is becoming heavily urbanized.

## ***2013 - 2018 - AAF Pronghorn Grassland Initiative - Multiple Presentations***

The AAF field manager, John Millican, presented a standardized PowerPoint program on multiple occasions to agency personnel, Malpai Borderlands Group, and area landowners. Mr. Millican reviewed pronghorn population enhancement efforts, volunteer projects, and funding opportunities including in-kind funding support.

## ***2014 - Arizona Department of Transportation Fence Modification Proposal***

The AAF field manager, John Millican, met with the Tucson office of ADOT and presented a PowerPoint program to explain the AAF / AGFD ROW fence modification proposal in the rights-of-way of both Highways 82 and 83. ADOT support was required to obtain the necessary ROW fence modification permits.

## ***February 7, 2015 - Professional Paper Presentation - Joint Meeting of the Arizona and New Mexico Chapters of the Wildlife Society***

Glen Dickens, retired AGFD biologist and AAF Board member, presented a technical/professional paper at the annual Joint Meeting of the Arizona and New Mexico Chapters of The Wildlife and Fisheries Societies held in Las Cruces, New Mexico. The "JAM" was attended by over 300 wildlife professionals and students from both states. Forty participants



attended Mr. Dickens' presentation entitled, *Arizona Antelope Foundation Southeastern Arizona Grasslands Pronghorn Initiative*. The presentation provided a three-year overview and results of the AAF's partnerships with the National Fish and Wildlife Foundation, AGFD, BLM, private landowners, and other non-governmental organizations to achieve major positive results for local pronghorn population herd areas.

### ***February 17, 2015 - Central Arizona Grasslands Conservation Strategy Working Session***

A grant progress presentation was made at the February working session of the *Central Arizona Grasslands Conservation Strategy* held at Ben Avery Shooting Range in Phoenix, Arizona. The presentation was attended by over 20 AGFD and federal land management agency personnel.

### ***August 29 - September 1, 2016 - Panel Discussion & Professional Paper Presentation - 27<sup>th</sup> Biennial Western States and Provinces Pronghorn Workshop, Fairmont Hot Springs, Montana***

The 27<sup>th</sup> Biennial Western States and Provinces Pronghorn Workshop was held at Fairmont Hot Springs, Montana and attended by over 100 participants. Glen Dickens attended on behalf of the AAF and Amber Munig, Big Game Supervisor attended on behalf of the AGFD. Mr. Dickens participated in a fencing / connectivity panel discussion and presented a 4-year progress report on the *Arizona Antelope Foundation's Southeastern Arizona Grasslands Initiative*. In addition, a poster authored by Dave Brown of the AAF on the remaining Hillside area pronghorn herd near Wickenburg, Arizona was presented.

### ***August 13-15, 2018 - 28<sup>th</sup> Biennial Western States and Provinces Pronghorn Workshop, Reno, Nevada***

The 28<sup>th</sup> Biennial Western States and Provinces Pronghorn Workshop was held at Reno, Nevada and was attended by over 90 participants. Glen Dickens attended on behalf of the AAF. The AGFD was represented by Game Specialists, Rana Tucker of Region V, and Erin Butler of Region III. The workshop included 24 technical papers and posters on the status and management of pronghorn, including reports from State, Provincial, and other agencies. The presentations covered research findings, approaches to habitat and population challenges, and pronghorn management. There was also a banquet and awards presentation.

This is a "must attend" workshop for anyone involved in pronghorn management anywhere in their entire distribution. This workshop is sponsored by the Western Association of Fish and Wildlife Agencies.

## **March 10, 2018 - Grasslands, Leopard Frogs and Livestock, - Fort Huachuca's 21<sup>st</sup> Century Allied Forces - Cochise College, Sierra Vista Campus**

The 1<sup>st</sup> Ft. Huachuca Sentinel Landscape Workshop was held at an all-day session at the Sierra Vista Campus of Cochise College and included over 45 participants. The workshop included technical papers on the status and management of grasslands, and flora and fauna species located in the Sentinel Landscape zone. Glen Dickens attended on behalf of the AAF and presented a 6-year progress report on the National Fish and Wildlife Foundation's, *Arizona Antelope Foundation's Southeastern Arizona Grasslands Initiative*, with a focus on the Sonoita Plains. Mr. Dickens reviewed the history of pronghorn restoration/transplant efforts (which began in the late 1940s) and showed the AGFD video, *A Triumph for Pronghorn*, giving a visual history of the AAF and AGFD partnership efforts to restore pronghorn numbers, modify 55 miles of fences, and improve habitat across 100,000 acres of the Sonoita Plains. Everyone in the audience gave a large round of applause at the film's end. The AAF is pleased to be included in these multiple partnerships and to have put in the time and funding since 2012 to make a big difference for the pronghorn antelope located on the Sonoita Plains.

## **December 11, 2018 – Presentation - “Historical Restoration of SE AZ Pronghorn and the Scientific Efficacy of Periodic Coyote Control”**

Glen Dickens gave a PowerPoint presentation entitled *Historical Restoration of SE AZ Pronghorn and the Scientific Efficacy of Periodic Coyote Control* to the entire staff of wildlife biologists at the AGFD Region V Tucson office. The program included giving each of the attendees an edition of the *Pronghorn of Arizona* as well as a bound compilation of the scientific articles and data used for the presentation.

## **October, 2019 – Arizona Society of Range Management Cost Sharing Presentation**

The AAF field manager, John Millican, presented a standardized PowerPoint program at the NRCS annual Arizona Range Management meeting. The goal of the program was to assist landowners with identifying and understanding cost share opportunities when developing projects that may have equal wildlife benefits.

## **November 7, 2019 - Southwestern Grassland Research and Management Workshop, University of Arizona**

The 1<sup>st</sup> Southwestern Grassland Research and Management Workshop was held at an all-day session at the University of Arizona and included over 100 participants. The workshop was organized by the Arizona Cross-Watershed Network, with support from UA Cooperative Extension, US Fish and Wildlife Service, AZ Department of Forestry and Fire Management, AGFD, and Pima County. AAF field manager, John Millican, and VP and grants/projects manager, Glen Dickens, attended on behalf of the AAF. Mr. Dickens presented the first lightning round PowerPoint presentation with a focus on the grassland restoration efforts on

the Bonita pronghorn herd zone. He reviewed efforts in which, from 2010 to 2018, a total of \$1.564M was spent on mesquite removal, at an average cost of from \$220 to \$300 per acre. Cultural clearances averaged \$233 per acre. He highlighted that the *Arizona Antelope Foundation's Southeastern Arizona Grasslands Initiative 8-year* grant's target was 5,000 acres of grassland restored and that at grant's end in 2019, 7,500 acres had been restored. Mr. Dickens also highlighted the volunteer hours and mileage, valuing over \$250K, that were contributed as a grant match toward the completion of 16 fence projects in 8 years.

## **HUMAN DIMENSIONS SURVEY (See Appendix A, pages 35-40)**

### ***July – August, 2015 - Sonoita Plains Pronghorn Values Opinion Survey Results***

In June of 2015, Glen Dickens received a surprise and welcome call from Karen Gravely of the Wofford College of Environmental Studies. Karen was looking for a qualifying undergraduate "Senior Capstone Project." At the time, Karen was interning for the summer with Ron Pulliam of Borderlands Restoration headquartered in Patagonia, Arizona. Following a field trip to the area by Ron and Karen, she inquired how she could assist with the accomplishments of AAF's fence connectivity work on the Sonoita Plains. Glen mentioned that one element needed after four years of grant work was a *Pronghorn Values Opinion Survey* to query local businesses, vineyards, homeowner associations, and private ranch owners. This type of wildlife survey is categorized as a "Human Dimensions Survey." Results are included in Appendix A (pages 35-40) and reflect the positive impact pronghorn have on the Sonoita Plains community.

## **PRONGHORN POPULATION SURVEYS**

### ***June 29-30, 2012 - Sonoita Plains Pronghorn Saturation Survey #1***

Grant and project managers and volunteers assisted AGFD with the 1<sup>st</sup> Sonoita Plains saturation post-neonate pronghorn survey in Game Management Unit (GMU) 35A on the Babacomari and Rose Tree Ranches, and all associated public and state lands south of HW 82. A similar survey was conducted the following day in GMUs 34A and 34B north of HW 82. Fawn survival averaged 55%, meaning 20 fawns were added to the subpopulation in 35A, which had zero recruitment in 2010 and 2011.

### ***June 25, 2013 - Sonoita Plains Pronghorn Saturation Survey #2***

Grant and project managers and volunteers assisted AGFD with the 2<sup>nd</sup> annual Sonoita Plains saturation post-neonate pronghorn survey in GMUs 35A and 35B on the Babacomari and Rose Tree Ranches, and all associated public and state lands. The survey resulted in 23 fawns observed, compared with 20 on the 2012 survey. Multiple sets of yearling does and bucks from the 2012 fawn crop were also documented, demonstrating positive survival for their first year. As of this survey, this population is now 77 pronghorn, which is 43 more animals than the area had in April 2012, representing a 126% increase in population size.

### ***June 26, 2014 - Sonoita Plains Pronghorn Saturation Survey #3***

Grant and project managers and volunteers assisted AGFD with the 3<sup>rd</sup> annual Sonoita Plains saturation post-neonate pronghorn survey in GMUs 35A and B on the Babacomari and Rose Tree Ranches, and all associated public and state lands. The survey resulted in 14 fawns observed. Multiple sets of yearling does and bucks from the 2013 fawn crop were documented, demonstrating positive survival for their first year. The AGFD's August aerial survey documented 104 pronghorn, up 80 animals from the project's beginning in 2012.

### ***June 13-14, 2015 - Sonoita Plains Pronghorn Saturation Survey #4***

Grant and project managers and volunteers assisted AGFD with the 4<sup>th</sup> annual Sonoita Plains saturation post-neonate pronghorn survey in GMUs 34A and 34B north of HW 82 on the Las Cienegas Grasslands, and in GMUs 35A and 35B south of HW 82 on the Babacomari and Rose Tree Ranches, and all associated public and state lands. The survey resulted in a stunning 84 total pronghorn fawns observed. Pronghorns in GMUs 34A and 34B totaled 119 observed (there were only 48 in 2011). In GMU's 35A and 35B, a total of 144 pronghorn were observed (compare to 33 in 2011). Based on this survey of known animals and estimating that a minimum of 10% of the herd was missed in the count, we have now accomplished the principle grant's goal of increasing both sub-populations to a minimum of 125 animals. Going into the spring fawning season of 2016 it's now likely that a minimum of 300 pronghorn are occupying the entire Sonoita Plains complex. This number is up from just 81 pronghorn in 2011 prior to the beginning of the project.

### ***July 8, 2016 - Sonoita Plains Pronghorn Saturation Survey #5***

Grant and project managers, along with 2 AAF Board members and volunteers, assisted AGFD with the 5<sup>th</sup> annual Sonoita Plains saturation post-neonate pronghorn survey in game management GMUs 34A and 34B north of HW 82 on the Las Cienegas Grasslands, and in GMUs 35A and 35B south of HW 82 on the Babacomari and Rose Tree Ranches and all associated public and state lands. The survey resulted in a stunning 83 additional pronghorn fawns observed. In GMUs 34A and 34B a total of 119 pronghorn were observed (48 in 2011). In GMUs 35A and 35B, 199 were observed (33 in 2011). Based on this survey of known animals and estimating a minimum of 10% of the herd was missed in the count, the principle Sonoita Plains 8-year grant has accomplished the principle goal of increasing both sub-populations to a minimum of 125 animals. In total, we counted 318 pronghorn, up from just 81 in 2011. This is a 390% increase in population size.

### ***July 10, 2017 - Sonoita Plains Pronghorn Saturation Survey #6***

Grant and project managers, AAF Board members, and volunteers assisted AGFD with the 6<sup>th</sup> annual Sonoita Plains saturation post-neonate pronghorn survey, including both GMUs 34A and 34B, east and west of Highway 83 and north of Highway 82, and GMUs 35A and 35B north and south of Highway 82. The population numbers and fawn success results were down from 2016, with 243 total pronghorn observed. The fawn success was 23% in units 34A and

34B, and just 12% in units 35A and 35B north. Last year, this survey counted 316 pronghorn with a fawn success of 56%. This area had just 81 pronghorn before we began our multi-faceted SE Arizona Pronghorn Initiative in 2012. So, even with the lower success rate this year, the minimum population is still three times what it was in 2012, when just 81 were observed in all four units.

### ***July 14, 2018 - Sonoita Plains Pronghorn Saturation Survey #7 & AGFD August Aerial Surveys***

Grant and project managers and AAF Board members and volunteers (totaling 22 participants) assisted AGFD with the 7th annual Sonoita Plains saturation post-neonate pronghorn survey. This survey included both GMUs 34A and 34B, east and west of Highway 83 and north of Highway 82, and GMUs 35A and 35B north and south of Highway 82. The group experienced heavy rains prior to and on the survey day which limited both glassing abilities and access to large portions of the area known to have pronghorn. A total 168 pronghorn were counted: 67 bucks, 88 does, and just 12 fawns, for a 14% fawning success rate. The factors considered for the lower number of fawns were first, lower winter moisture from November to March, which then led to lower fawn weights at birth the following April and May. The lower birth weights likely led to early post-parturition death as well as predation.

The previous year's survey (2017) netted 243 observations, and the year before (2016) the survey revealed 316 animals. AAF continues to document pronghorn dispersals, with yearling pronghorn singles and small groups being observed three, five, and eight miles in all directions of the compass from what was previously considered core habitat. This is very positive data. Most of the areas the young pronghorn are exploring are suitable pronghorn habitat that has not been occupied since the native and extirpated pronghorn occupied it in the 1930s. This is due in large part to the modification of fences to pronghorn friendly standards.

In addition to the above population numbers, the AGFD's August flight survey for the San Rafael Valley (35A and 35B south) counted an additional 61 animals (with 9 fawns counted for a 24% fawn success in this sub-population). This herd area had just 9 pronghorn (1 buck and 8 does) in January of 2014 when the AGFD released 17 transplant animals from New Mexico. The 2017 survey in this area found 44 animals; we are very pleased to see this continued recruitment in this key sub-population zone.

### ***July 6, 2019 - Sonoita Plains Pronghorn Saturation Survey #8 & AGFD July Aerial Surveys***

Grant and project managers, AAF Board members, and volunteers (totaling 23 participants) assisted AGFD with the 8<sup>th</sup> annual Sonoita Plains saturation post-neonate pronghorn survey. This survey included both GMUs 34A and 34B, east and west of Highway 83 and north of Highway 82, and 35A and 35B, north and south of Highway 82. The group counted a total of 274 pronghorn: 84 bucks, 130 does, and 57 fawns, for a 44% fawning success rate. Last year there was a 14% fawn success rate. At least two factors likely account for the higher number of fawns; higher winter moisture from January to April, and thus greater fawn weights at their April and May births; and one year of fawn enhancement coyote treatment.

In addition to the above population numbers, the AGFD's July flight survey for the San Rafael Valley (35A and 35B south), counted an additional 52 animals, with just 5 fawns counted for a 17% fawn success in this sub-population. This herd area had just 9 pronghorn (1 buck and 8 does) in January of 2014 when the AGFD released 17 transplant animals from New Mexico. In 2018, the survey found 61 animals, and in 2017, 44 animals were counted. We are very pleased to see this continued recruitment in this sub-population zone.

## **PRONGHORN POPULATION TRANSPLANTS and ENHANCEMENTS**

### ***January 13-15, 2014 - Cimarron New Mexico Pronghorn Capture/Transport***

Grant and project managers along with 8 AGFD personnel, traveled to Cimarron, New Mexico to aid in the capture, ear tagging, and radio collaring of 43 pronghorn. Babacomari Ranch's west pasture (GMUs 35A and 35B north) received 25 of these animals and 17 were released in the north end of the San Rafael Valley (GMUs 35A and 35B south). Three animals had active collars for the calendar year 2014 (see photos, pages 56-57). See map #4, page 44, for a display of yellow tagged pronghorn dispersals between 2014-19 both north and south of the Babacomari West Pasture release site. In the extreme case a distance of 20 air miles to the south end of the San Rafael Valley.

### ***January 27-29, 2014 - Prescott Arizona Pronghorn Capture/Transport***

AAF volunteers assisted in the trap construction and capture of pronghorn in the Granite Dells area of Prescott. The group transported 6 blue ear tagged animals to the Rose Tree Ranch near Elgin. Ten Tombstone High students also attended and assisted with both trap construction and capture and the handling of the 6 animals. See map #4, page 44, for a display of blue tagged pronghorn dispersals from the Rose Tree release site.

## **SUMMARY**

As noted above in January 2014, 43 pronghorn, captured near Cimarron, New Mexico were released at two sites in the south Sonoita Plains and the San Rafael Valley, GMUs 35A and 35B. Twenty-five animals were released on private property in the West Pasture of the Babacomari Ranch, and 17 in the northwest end of the San Rafael Valley on USFS lands in Meadow Valley. In January, 2014, another 6 pronghorn, captured near Prescott, Arizona were released on the Rose Tree Ranch Davis Pasture. Annual saturation surveys over the past 8 years have shown a steady upward population trend resulting in both herd zones north and south of HW 82 achieving the minimum herd population objective of 125 animals each by 2015. Subsequent surveys in 2016, 2017, 2018, and 2019 continue to count not fewer than 250 animals, thus the two population objectives have been accomplished (see Map #3, page 43).

When the grant efforts began in 2012, the entire Sonoita Plains had just 81 documented pronghorn: 50 north of HW 82, and 31 south of the highway. In 2012, there were 3 disjunct and separate subpopulations that now function as a single meta-population due to the hard work and successes of this 8-year, landscape level project. The entire 100,500 acres of the



Sonoita Plains that are non-urbanized and suitable for pronghorn are now seasonally occupied. Roadway limitations and barriers to free movement by pronghorn no longer exist and the Mustang Mountains west-slope corridor is functioning as planned. Interior pasture fence modifications have caused a two-fold increase in available fawning habitat, as has adding additional water points in key fawning zones. Following approved scientific protocols, this herd zone received seasonal pronghorn fawning enhancement coyote treatment in 2012 through 2015, and again in 2019. Structurally, the long-term outlook for this 100,500 acre herd zone and habitat is excellent.

## APPENDIX A

### HUMAN DIMENSIONS SURVEY

#### ***July – August, 2015 - Sonoita Plains Pronghorn Values Opinion Survey*** **Results:**

In June of 2015, Glen Dickens received a surprise and welcome call from Karen Gravely of the Wofford College of Environmental Studies. Karen was looking for a qualifying undergraduate “Senior Capstone Project.” At the time, Karen was interning for the summer with Ron Pulliam of Borderlands Restoration headquartered in Patagonia, Arizona. Karen was interested in our connectivity work that had been accomplished on the Sonoita Plains after a June field trip there with Ron and wanted to know if and how she could assist our efforts in the time she had remaining in Patagonia. Glen mentioned that one element the project needed (after four years of project work on the Sonoita Plains) was a *Pronghorn Values Opinion Survey* to query local businesses, vineyards, homeowner associations, and private ranch owners. These types of wildlife surveys are categorized as “Human Dimensions Surveys.”

Karen enthusiastically agreed to provide the necessary labor and data analysis, including making the calls and personal visits that such a survey would entail. Glen drafted the base questions and, working with Loren Chase, the Human Dimensions Program Manager for the Arizona Game and Fish Department, created a professional survey for Karen to administer during July and August. It is important to note that surveys with such a limited sample size are often not considered statistically valid. That said, the open-ended questions and the respondents’ answers do provide us with a solid sense of how the participants “see” pronghorn and their possible values on the Sonoita Plains.

The AAF owes a particular thank you to Karen Gravely and her demonstrated personal and professional initiative for taking this project to completion while interning at Borderlands Restoration. Working with Karen also reinforces the AAF’s continued commitment to youth involvement and development to every degree possible in our *Southeastern Arizona Pronghorn Initiative*.

What follows are the overall survey results. In the case of the open-ended questions, of the 19 responses, we selected 10 from each category and listed them by business type, rather than name. This approach offers a solid sense of the value of the Sonoita pronghorn herd to the residents of the Sonoita Plains. As revealed by these responses, overall, pronghorn are perceived as a very positive presence on the Plains.

### **APPENDIX A - Sonoita Plains Pronghorn Values Opinion Survey**

18/19 respondents answered the following weighted questions, rated them from 1 to 5 (with a 1= disagree and 5 = highly agree):

<b>Question</b>	<b>Rate</b>
I value the presence of pronghorn on the Sonoita Plains.	<b>4.8</b>
Pronghorn contribute to my quality of life.	<b>4.4 (with 2 NA)</b>
The presence of pronghorn adds value to my business.	<b>4.5 (with 3 NA)</b>
The presence of pronghorn adds value to my property.	<b>4.1 (with 1 NA)</b>
I have noticed an increase in pronghorn population in the past two years.	<b>4.3</b>

All 19 respondents completed the write-in questions as follows:

**Overall, do you feel that having pronghorn on the Sonoita Plains is positive, negative, or both?**

<b>Respondent</b>	<b>Percep- tion</b>	<b>Comments</b>
Homeowners Association	Positive	Wildlife is always beneficial to where we live. It probably shows the health of the habitat.
Realty	Positive	People come to this area for the outdoor activities and related, like the vineyards. Seeing pronghorn enhances their experience.
Motel	Positive	Visitors to the Inn will ask about them. Also, people living in this area value nature and peace, so pronghorn are included in that.
Café	Positive	Having pronghorn shows the balance of the ecosystem and helps tourism, but they are dangerous for cars on the roads and eat grapevines.
Winery	Positive	A lot of people enjoy watching them. The more others hear about the pronghorn, the more people will visit, which is better for tourism and the wineries.
Winery	Positive	Customers at the winery like them, they keep the grass down, and history shows that they belong here.
Winery	Positive	I think having the pronghorn provides a wonderful backdrop to this area. I know all our customers love to sit on our porch with a glass of wine and watch these animals.
Winery	Positive	They're such a timid creature. It's fun to see them on nearby fields. They're another reason Sonoita and Elgin are special.
Ranch	Positive	People come to the ranch, and it's a great experience for people to see them because it's not an animal you normally see.
Ranch	Positive	Biodiversity is necessary for overall environmental health. As development and human populations increase, it requires more management to maintain native populations.

**Before today, have you heard about the effort to increase the pronghorn populations by the Arizona Antelope Foundation and the Arizona Game & Fish Department?**

<b>Respondent</b>	<b>Re- sponse</b>	<b>Comments</b>
Homeowners Association	Yes	We attended a meeting by the AAF at the Sonoita firehouse. Unfortunately, we were not able to participate in the work event.
Realty	Yes	From friends.
Realty	Yes	From the bulletin. I know people who are involved.
Motel	No	I haven't heard about these particular efforts, but I heard about releasing new antelopes.
Café	No	
Winery	Yes	A visitor to the vineyards about a month or two ago said he knew about the project and had recently counted more antelope in the last year than in previous years.
Winery	Yes	From a newsprint ad and I witnessed the release.
Winery	Yes	I am friends with a scientist at the Research Ranch and have been here for 12 years.
Ranch	Yes	Direct interaction with Antelope Foundation and AZGFD to improve habitat on our property by fencing modifications, water development, and depredation of coyote.
Ranch	Yes	I have worked with Antelope Foundation.

**Do you support future projects to increase and maintain the pronghorn populations by the Arizona Antelope Foundation and the Arizona Game & Fish Department?**

<b>Respondent</b>	<b>Re- sponse</b>	<b>Comments</b>
Homeowners Association	Yes	Clear out the mesquites.
Homeowners Association	Yes	You have our strong support.
Realty	Yes	I do not support predator removal, though, because everything is here for a reason.
Realty	Yes	
Motel	Yes	
Café	Yes	If their habitat is in danger.
Winery	Yes	The pronghorns are beautiful and definitely help our business, which is based on sales direct to visitors.
Winery	No	If it increases my personal or business taxes then I am not in favor of it.
Ranch	Yes	Stabilizing restored populations requires a long-term commitment.
Ranch	Yes	



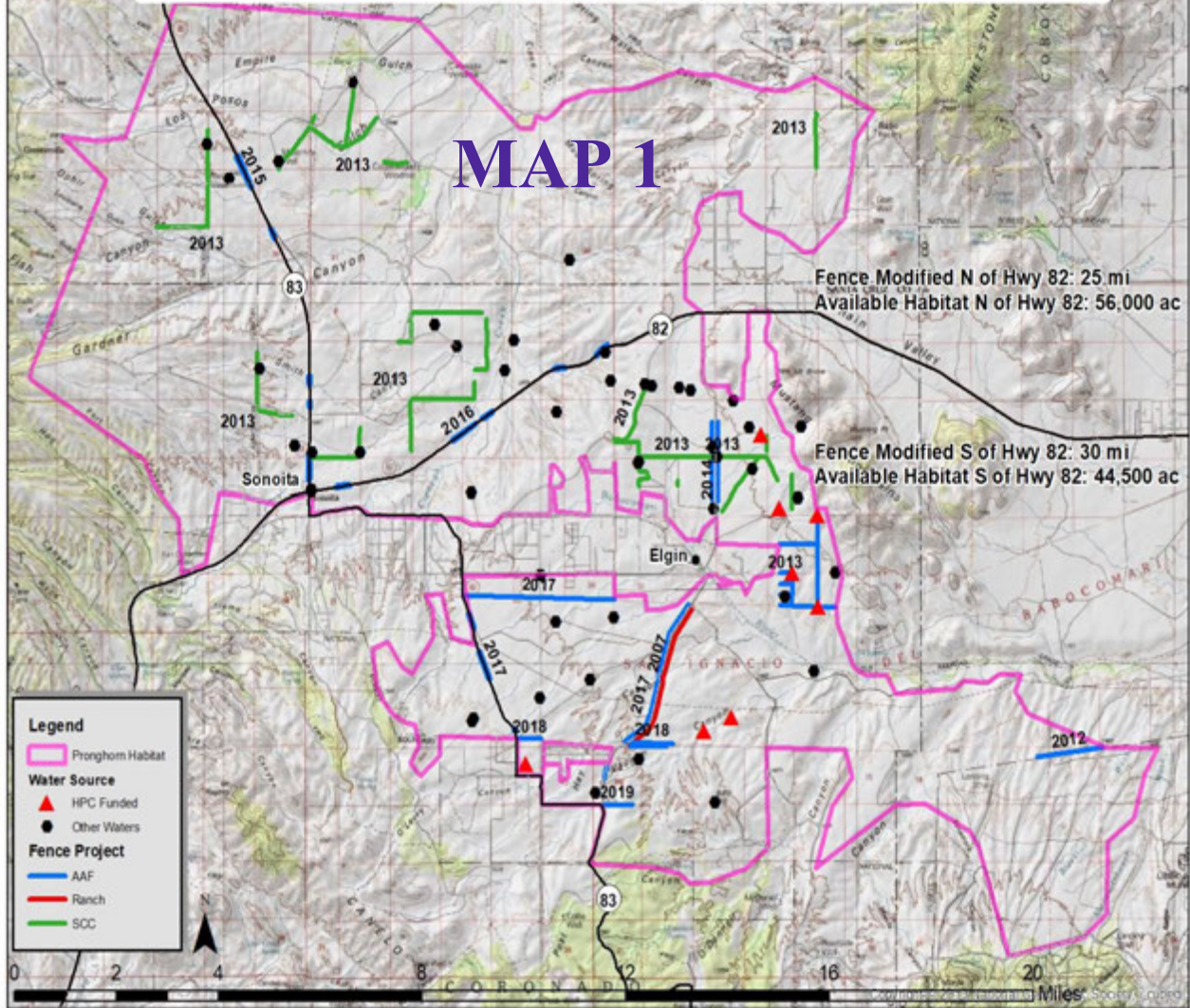
**Do you have any suggestions/comments or ideas you would like to share regarding pronghorn management on the Sonoita Plains?**

<b>Respondent</b>	<b>Comments / Suggestions</b>
Homeowners Association	My wife and I are pleased to report that a young pronghorn buck has visited our pasture which is generally one mile north of the Historical Marker on SR 82 (near mile marker 29) for 2 years in a row in the spring. No does.
Realty	Put up “Pronghorn Crossing” caution signs to draw attention to the fact that they are here.
Realty	They are beautiful. I worry they would be harmed if the wolves are relocated here which is a bad idea.
Motel	I was very excited to see the baby antelope on Hwy 83 while driving to work.
Winery	I am surprised that people don’t take more notice, so try to bring more attention to them. Also, would there be a way to keep them out of the vineyards?
Winery	Advertise the release more thoroughly. Other than that, great job.
Winery	The pronghorn collars are weird.
Winery	1) Perhaps share what’s going on and the population numbers to the Sonoita/Elgin Chamber of Commerce, so they can relay information. 2) Provide brochures/pamphlets to the wineries/tasting rooms about pronghorn and their presence in the Sonoita/Elgin area. Lots of wine tasters will be interested in learning about them.
Ranch	The current plan seems to be working.
Ranch	Must keep developing awareness and recruiting volunteers. Maintaining open space corridors is critical.

*One clarifying comment: Local mule deer are likely the offending vineyard “pronghorn” that are jumping the fences in dry spring years (e.g. April-May-June) and helping themselves to the first green spring feed that is available. As we know, pronghorn do not jump fences and a majority of the local vineyards have installed sheep fence in the lower portion of their protective fences.*

**Building Connectivity On the Sonoita Plains Through Fence Modification and Improved Water Distribution**  
**Total Available Habitat: 100,500 acres**

# MAP 1

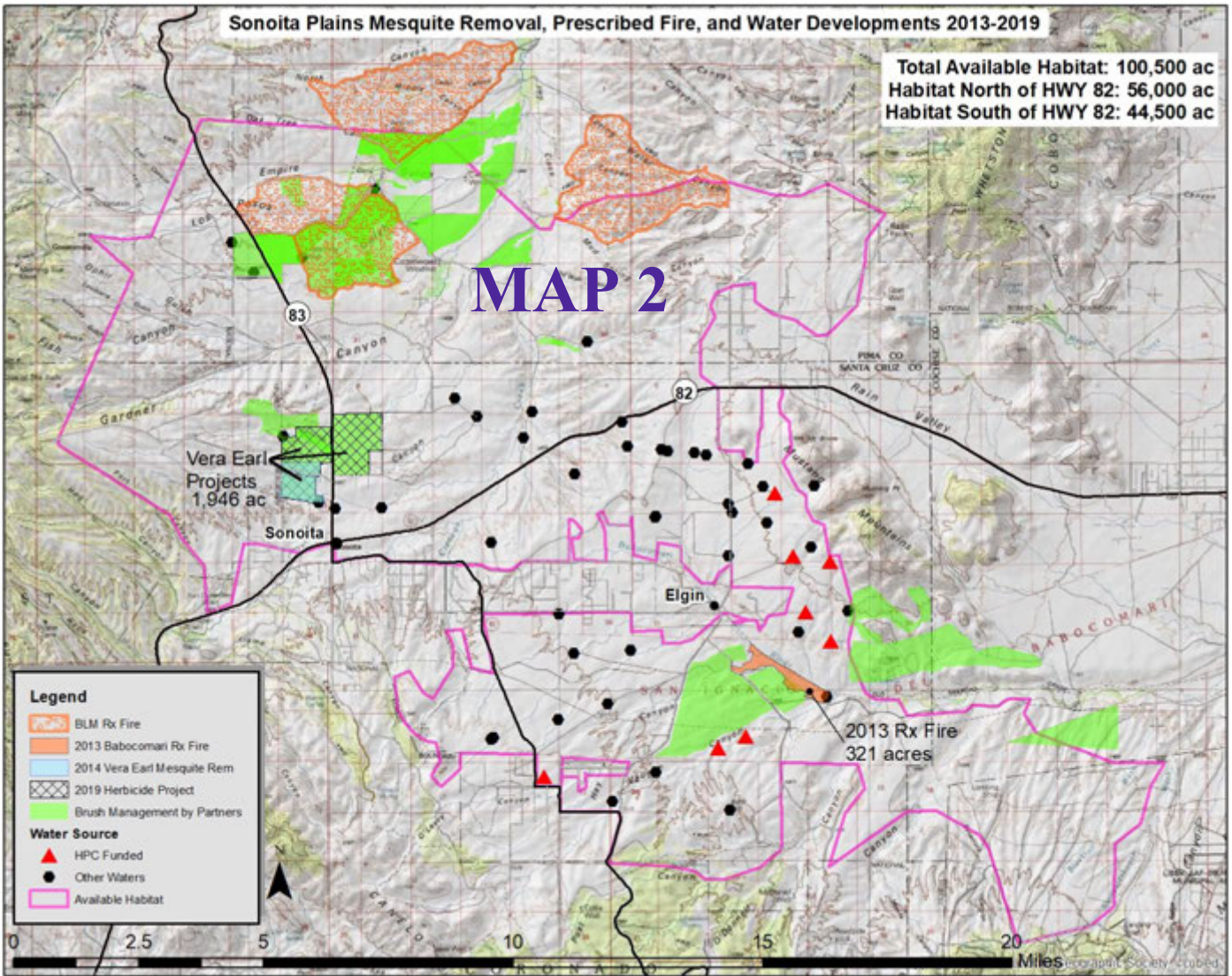




Sonoita Plains Mesquite Removal, Prescribed Fire, and Water Developments 2013-2019

Total Available Habitat: 100,500 ac  
Habitat North of HWY 82: 56,000 ac  
Habitat South of HWY 82: 44,500 ac

MAP 2





Sonoita Plains Aerial Survey Observations 2009-2019

Year	#Observed
2009	110
2010	103
2011	47
2012	107
2013	96
2014	163
2015	179
2016	266
2017	206
2018	196
2019	213

MAP 3

**Legend**

- Pronghorn Habitat
- Jan 2014 Release Site
- ▲ 2009 Survey
- ▲ 2010 Survey
- 2012 Survey
- 2015 Survey
- 2016 Survey
- ▲ 2017 Survey
- 2018 Survey
- ★ 2019 Survey

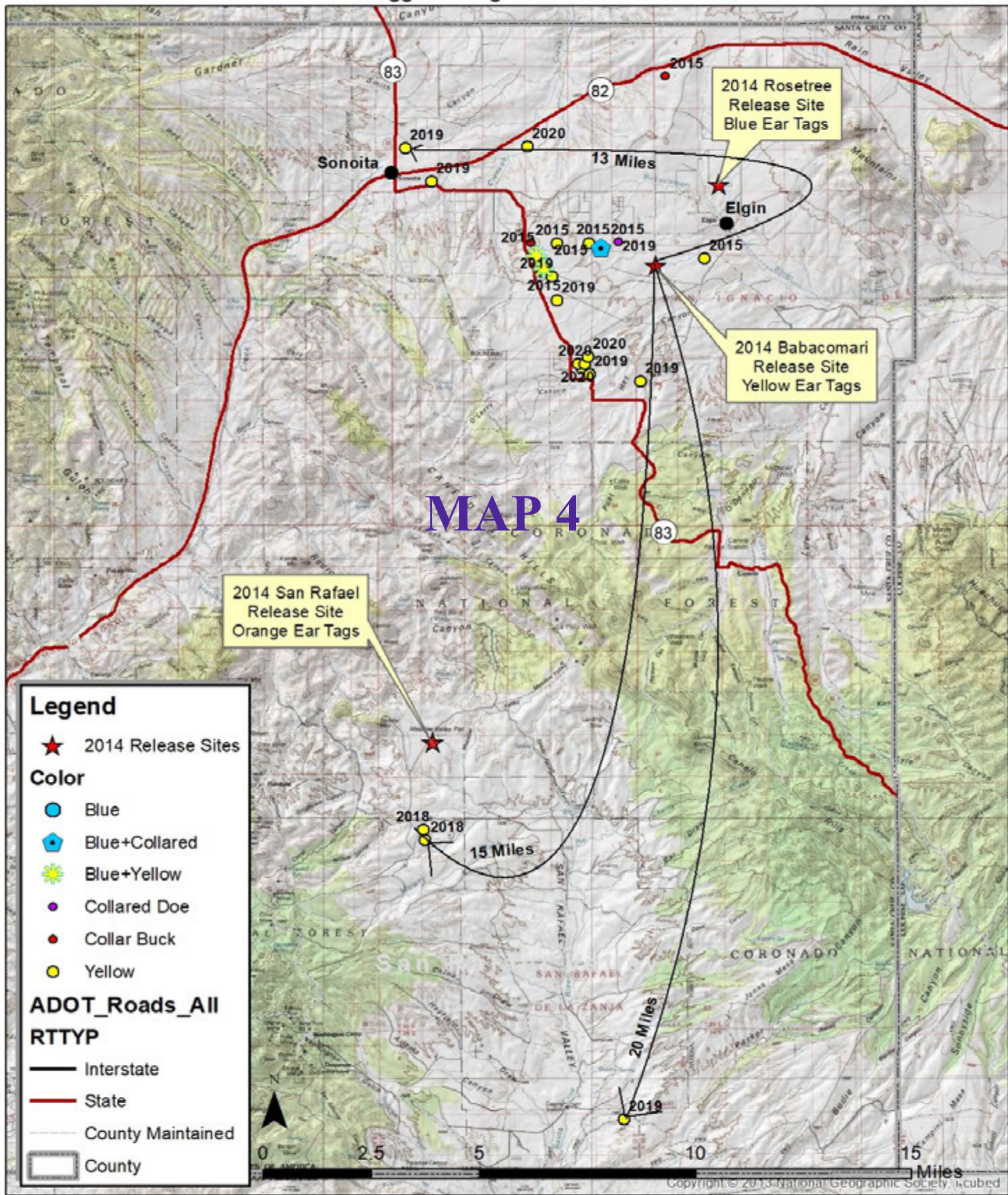
Jan 2014  
Rosetree  
Release Site

Jan 2014  
Babacomari  
Release Site





# Eartagged Pronghorn Observations 2015-2020







# Hwy 82 Fence Project



April 15-17, 2016





# Arizona Elk Society "Sawers"



*Hwy 83 North Mesquite Removal*



**October 2-4, 2015**





# PRONGHORN

2nd Quarter 2018  
Volume 24 Number 2

**Glen Dickens,**  
AAF VP / Grant Manager

**Betty Dickens,**  
AAF Photographer

**John Millican,**  
AAF Field Manager







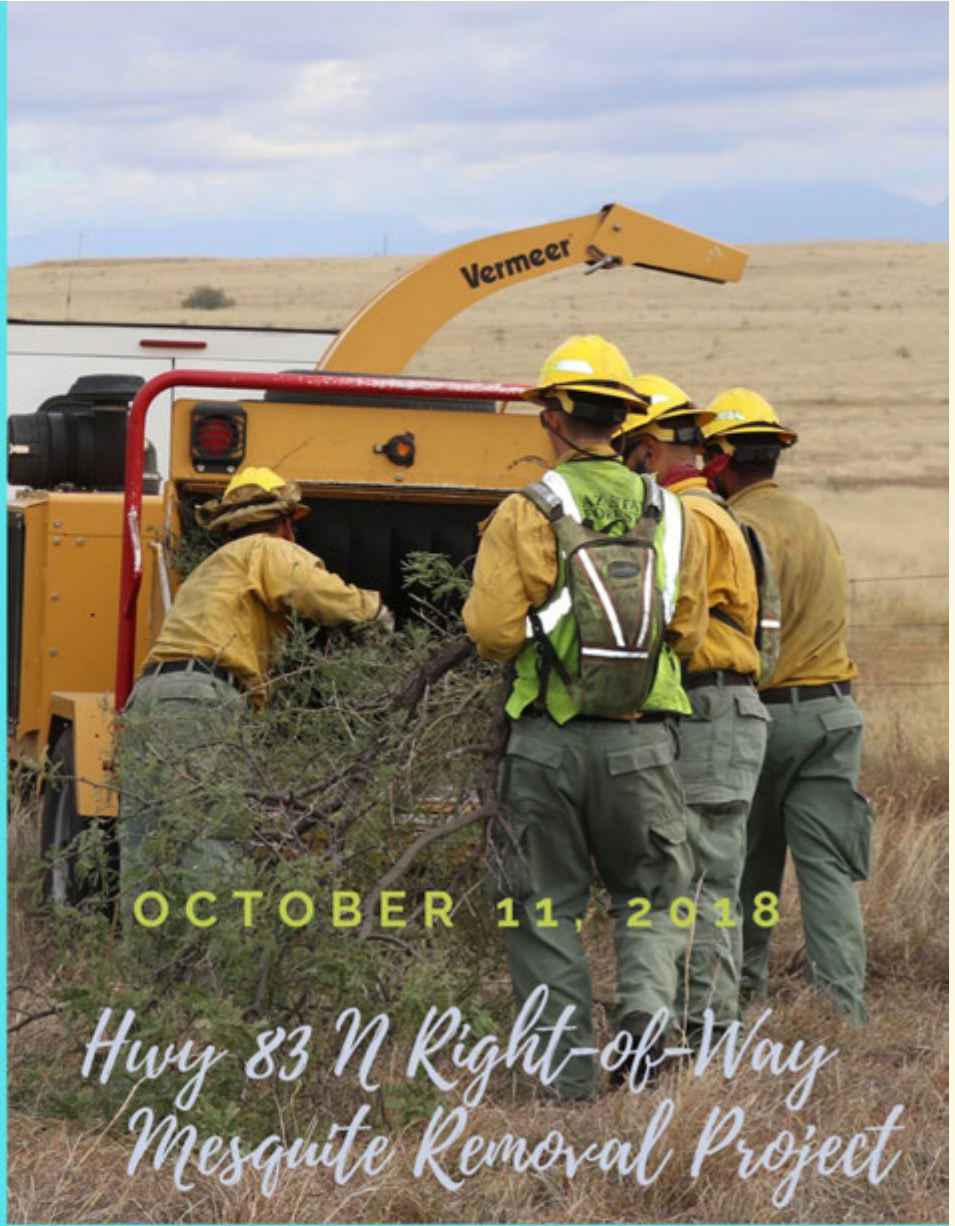
SOUTHEAST SONOITA  
PLAINS  
VOLUNTEER CREW  
April 2018





**SOUTHEAST SONOITA PLAINS  
PASTURE FENCE PROJECTS  
APRIL 2018  
100,000 ACRES COMPLETED**





OCTOBER 11, 2018

*Hwy 83 N Right-of-Way  
Mesquite Removal Project*







# PRONGHORN

*1st Quarter 2020*  
*Volume 26 Number 1*



*Jolly Well*

# MY SPRING PRONGHORN ADVENTURE

By Caitlin Kelley,  
High School Senior  
July 20, 2012



From April 30 through May 18, I volunteered for the Arizona Antelope Foundation's *Southeastern Arizona Grasslands Pronghorn Initiative* with Wulf, Deiter, and Netzin Steklis. It was an experience unlike any I've had before that's simple enough for anyone who's interested to participate in whatever we he/she can.

The goal of the portion of the Initiative that I worked on was to attempt to make an account of the pronghorn on the Sonoita plains sur-

rounding Sonoita. We were recording not only where the pronghorn were and their numbers, but also their genders, coat conditions, and whether or not the females appeared to still be pregnant. To help us keep an eye out for the pronghorn, we also searched for cattle, water, and coyotes (who would hunt the fawns).

How were we able to get this data? We were given maps with circled areas where locals had seen pronghorn fawn over the years. With the maps in hand and a GPS to guide us to the circled areas, we marked several waypoints within each circle, where we would do a three-sixty with binoculars, and mark everything we did and didn't see. This way, we would begin to know where the pronghorn were fawning this year as well as where they were staying away from. To be sure we didn't just happen to miss a pronghorn sighting one day, we checked in on the waypoints throughout the week to see if any arrived. Outside of the areas, we would record a waypoint if we saw any pronghorn.

So, now we have all of this information, but what good does it do? Thanks to knowing where the pronghorn are fawning, down to the elevation, we were able to discover what areas ranchers should keep pre-existing water tanks full during that time of year, what fences were the most critical to update and fix to pronghorn standards, and the quality of the vegetation where the pronghorn were. We hope that this will keep the Initiative on the right track and help guide what steps should be taken next to ensure the safety and growth of the species. With the knowledge of fawning grounds made public, ranchers will know what pastures need increased grass height in May and early June, and future researchers will have an idea of where to look for fawns as well as have an organized, uniform layout for recording their data based on the tables we made for this year's work.



This Initiative was something I never expected to do in my life, but I'm glad I did. Once I got the hang of collecting data (and, believe me, it's not as difficult as you would think), I was able to go out in the pastures and on the plains by myself on a daily basis. It felt great knowing that I was doing something that would help the pronghorn, and it was amazing to spend so much time in the silent, wide-open outdoors. But the most incredible part was how capable of handling myself I felt. Having to rely on myself to take high quality data and to take care of my tools and to find my way around, I felt like I could do anything. Where I used to rely on a speaking GPS to get anywhere new, I can now find my way with a compass, map, and absolutely nothing familiar in my surroundings. This newfound feeling of being self-reliant is huge for me as I go off to college this fall. I feel more confident and sure of myself, and I feel like I don't have to rely on others so much anymore. For anyone who enjoys relaxing in the outdoors while helping the environment and getting a "beginner's guide to outdoor survival," I strongly recommend volunteering in the AAF's *Southeastern Arizona Grasslands Pronghorn Initiative*. It's well worth it and the pronghorn will thank you.

A lot of this project was made possible not only thanks to the Steklis' who peaked my interest and introduced me to everyone involved, but also thanks to the AAF and National Fish and Wildlife Foundation for the funding. With it, we were able to have high quality binoculars and GPSs that made data so much easier to collect and improved the accuracy of our work and to have our vehicles' gas paid. Had we not had the funding, a lot of the data would have been recorded by hand rather than right on the GPS where human error was eliminated. The high quality binoculars allowed us to see further in higher detail, so pronghorn that would have ordinarily escaped notice were accounted for. This funding providing advanced tools to volunteers interested in conserving the pronghorn and the data becomes faster and easier to collect as well as more accurate.

The AAF's *Southeastern Arizona Grasslands Pronghorn Initiative* was a great way to get involved in a hands-on way with one of my passions, wildlife, and I would like to thank everyone who makes the conservation effort possible. Without you guys, I would have never had the chance to discover something as new and exciting as the *Southeastern Arizona Grasslands*



*Pronghorn Initiative*, and the number of pronghorn in Southern Arizona would continue to decrease.



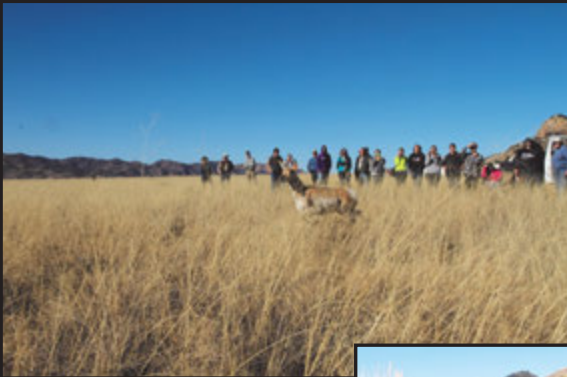
AAFC RECEIVES  
2013  
*Youth & Conservation Grant*







*Cimarron, New Mexico—2014*  
*The Journey—Capture and Release*







# PRONGHORN

*1st Quarter 2014*  
*Volume 20 Number 1*



# SAN RAFAEL VALLEY HERD ZONE

## 57,000-Acres

### OVERVIEW

Pronghorn habitat in the San Rafael Valley is 57,000 acres, 30% of which are US Forest (USFS) lands. The remaining 70% are private and administered by 5 ranches. The area is secure from urbanization due to its public land status, open space conservation easements, and strong conservation ethos shared by the private landowners. The San Rafael Valley was historic pronghorn habitat but by 1940, pronghorn were absent. At the request of local rancher, Marshall Ashburn, AGFD transplanted 70 pronghorn from the Coconino Plateau, east of Flagstaff, in 1945 and 1951. Populations reached a high in the mid-1960s when AGFD District Wildlife Manager, John Carr, reported more than 100 animals distributed from the Vaca Ranch south to the Sharp Ranch, east to the Parker Canyon steppes, and even further east on Campini Mesa. In 1975, Glen Dickens, a senior University of Arizona wildlife student, found pronghorn throughout those areas, but with numbers reduced to 40. Some rebound occurred in the 1980s, but by 2011 just 12 animals remained. The herd range was vastly reduced to a zone defined by the Vaca Ranch on the north, the Sharp Ranch to the south, and staying on the western side of the main center valley road. This population deficit was addressed in 2014 with a supplemental AGFD release of 17 animals from Cimarron, New Mexico (see Map #1, page 60).

Connectivity was not identified as a significant limiting factor based on valley-wide pronghorn distribution during surveys and the many miles of pronghorn-friendly fence replacement by the Sharp Ranch in the core focal area of the valley. Livestock and wildlife water distribution and security is considered excellent. Grasslands in this valley are maintained by balanced, rigorous grazing regimes practiced by the landowners, who raise purebred Hereford cattle. Juniper invasion on USFS lands in the southeastern quadrant of the valley is being addressed with mastication and removal funded by the USFS, borderland grants, and HPC funds. The Mexico-U.S. international border fencing and walls on the southern end of the valley is now considered a permanent movement barrier and that is desirable from the perspective of long-term population management objectives.

### PROJECTS

#### ***October 1, 2011 - AAF San Rafael Valley / Vaca Ranch Fence Modification***

A volunteer fence project completed by 25 AAF volunteers on the Vaca Ranch. Fence was modified for 1.5 miles on private property in the northwest quarter of the San Rafael Valley in the Meadow Valley area bordering a main county roadway. The 1.5-mile fence modification improved permeability for the remaining herd of 12 pronghorn utilizing the Meadow Valley area and improved connectivity **on 4,800 acres** of critical pronghorn fawning habitat. It assisted in completing a critical northwest portion of the overall San Rafael Valley pronghorn corridor improvement project (see Map #1, page 60).

## **PRONGHORN POPULATION TRANSPLANTS & SURVEYS**

### ***January 13-15, 2014 – Meadow Valley Transplant***

The grant and field project managers, along with 8 AGFD personnel, traveled to Cimarron, New Mexico to aid in the capture, ear tagging, and radio collaring of 43 pronghorn. Seventeen of these animals were released in the northwest end of the San Rafael Valley on USFS property in an area known as Meadow Valley. It took less than 4 hours for the new gene pool members to find and join up with the remaining resident herd of just 9 animals.

### ***August, 2018 - AGFD August Aerial Surveys***

The AGFD August flight survey for 35A/B south of the San Rafael Valley counted 61 animals (including 9 fawns for 24% fawn success in this sub-population). This herd area had just 9 pronghorn (1 buck and 8 does) in January of 2014 when the AGFD released the 17 transplant animals from New Mexico. The previous year's August 2017 survey had recorded only 44 animals so it is promising to see this continued recruitment in this key sub-population zone.

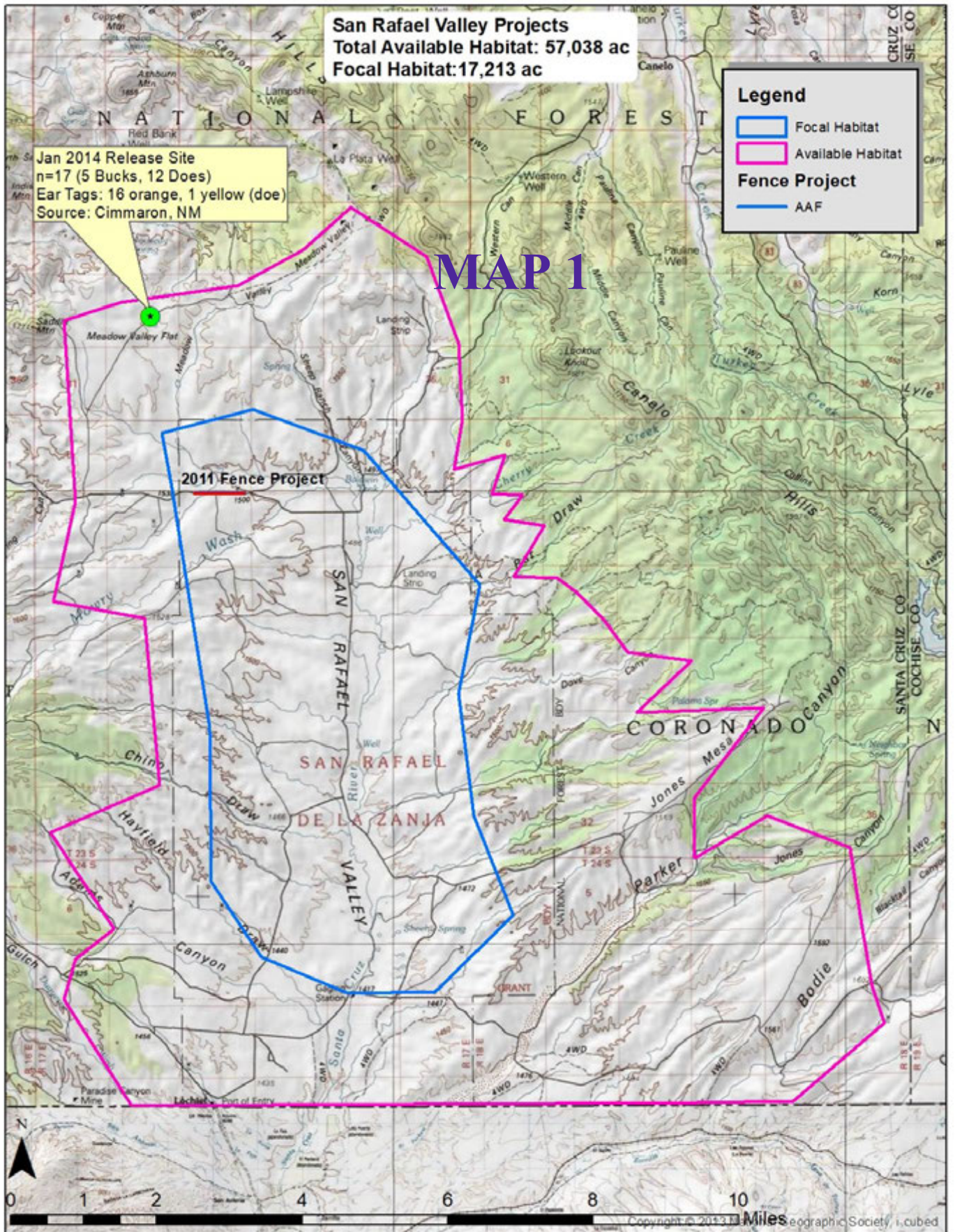
### ***July, 2019 - AGFD July Aerial Surveys***

The AGFD July flight survey for 35A/B south of the San Rafael Valley counted 52 animals (with just 5 fawns counted for a 17% fawn success rate in this sub-population). This herd area had just 9 pronghorn (1 buck and 8 does) in January of 2014 when the AGFD released the 17 transplant animals from New Mexico. The 2018 survey recorded 61 animals, and 44 were counted in 2017. While this year's numbers were lower than last year, there is still promising continued recruitment in this sub-population zone.

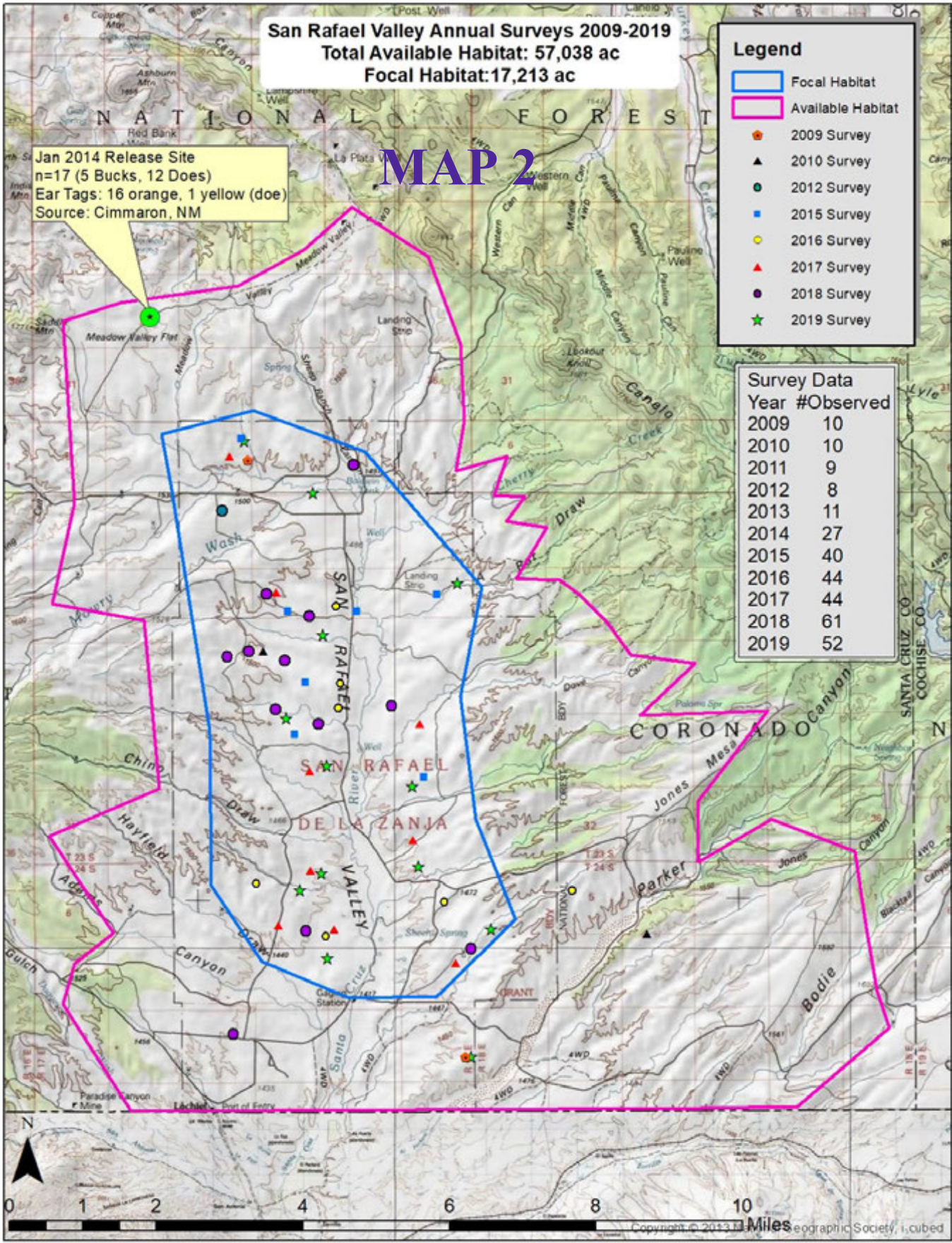
### **SUMMARY**

Until 2014, survey data showed a declining population that was at risk of complete extirpation. With the 2014 pronghorn release, numbers have rebounded. As of the August, 2019 AGFD aerial survey, the minimum herd number is estimated to be 70 animals (see Map #2, page 61, & Photo, page 62). With good seasonal moisture the herd now has the potential to reach the minimum population objective of 125 in 3 to 5 years.

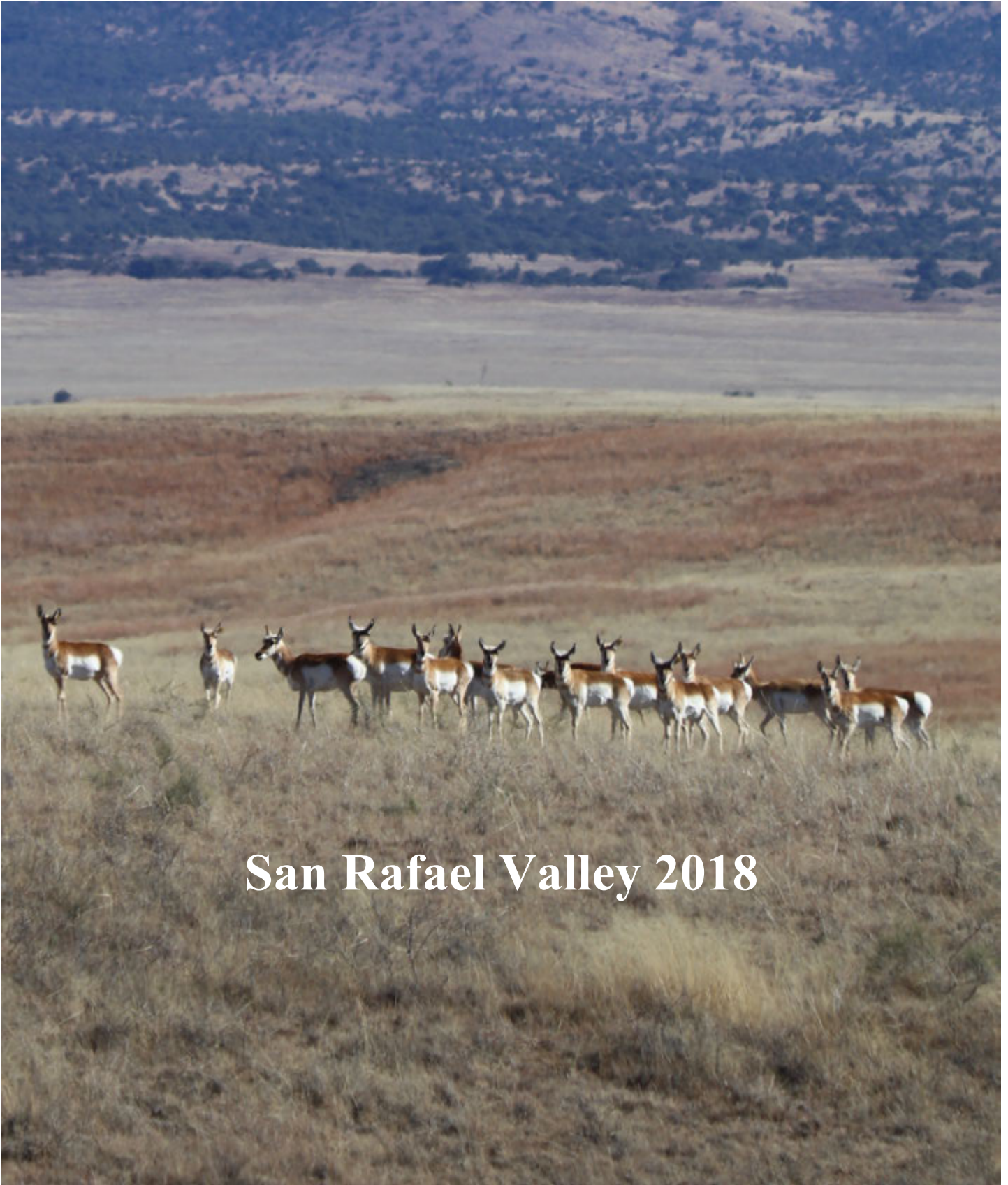












## San Rafael Valley 2018

# **BONITA HERD ZONE**

## **268,728-Acres**

### **OVERVIEW**

The Bonita herd zone, located in the northern Sulfur Springs Valley, is considered historic pronghorn habitat and was absent of pronghorn by 1930. Seventy pronghorn, from the AGFD Raymond Ranch Antelope Refuge east of Flagstaff, were reintroduced by the AGFD in the Bonita herd zone on six occasions, from 1943 to 1945. The herd became well established by 1952 when 117 animals were observed. In 1954, a survey recorded 150 animals. Improving genetic diversity was deemed desirable for this herd zone and was addressed in January 2019 with two supplemental pronghorn releases.

Connectivity was also identified as a significant issue when the grant began in 2012. Connectivity was addressed from 2012 to 2019 with 12 separate fence projects in the core pronghorn use areas. These projects modified and/or replaced 33 miles of fence, resulting in increasing the connectivity by 56,574 total acres (see Map #1, page 72). Although water distribution and security was considered excellent, the HPC funded 3 water distribution projects to fortify this resource: one in 2014 in the extreme north end of the valley, 2016 southeast of Bonita, and the other in 2017 in the central valley.

Mesquite encroachment was considered extreme in 2010 when the Bonita Grasslands Restoration Project was established. Led by the NRCS and the AGFD, and working closely with local ranch owners, its goal was to improve/grub 10,000 acres in 5 years. With a focus on improving grasslands, AAF utilized both NFWF 8-year grant and AGFD HPC funds on 7 different grassland restoration projects, totaling 5,235 acres (see Map #2, page 73). The goal of improving 10,000 acres was achieved by 2016 and revised up to 20,000 acres. By 2019, a minimum of 15,000 acres of grassland had been restored and are being used by resident and reintroduced pronghorn. Second growth mesquite is a continuing long-term grassland maintenance and preservation threat, especially when enhanced by favorable wet cycle years. Local landowners prefer using safe herbicides rather than fire treatment on 5-10-year-old second growth mesquite.

### **FENCE/WATER PROJECTS (see Map #1, Page 72, & Volunteer Photos, Page 76)**

#### ***September 21, 2013 - O Bar O-Homack Ranch Fence Roll-up and Removal***

An AAF volunteer fence project was completed by 37 volunteers on the O Bar O-Homack Ranch in the northwestern portion of the Bonita plains. This accomplished a key portion of the connectivity need in this zone. A total of 20 miles of barbed wire was rolled and removed on 3.5 miles of re-built, 4-strand fence. This area is slated for additional mesquite grubbing in 2014-15 and will improve pronghorn connectivity on **16,150 acres**.



### ***November 25, 2014 - 76 Ranch East Side Water Development***

A major water storage, pipeline, and ground level trough project was completed by the 76 Ranch. It was funded with \$32K of HPC dollars and \$40K by the landowner. The project resulted in 24 separate secure water points on **12,400 acres** for livestock and wildlife. At least 50% of these water points are located in pronghorn habitat.

### ***September 19-20, 2015 - High Creek Road ROW Fence Modification and Fence Removal***

An AAF volunteer fence project was completed by 30 volunteers in the northwest portion of the Bonita plains, 14 miles west of Bonita. The project weekend had two elements: fence modification and fence removal. First, the modification of 2 miles of existing right-of-way fencing along High Creek Road on the north side, and 1.5 on the south, resulted in **2,560 acres** of pronghorn habitat connectivity. Second, removal and roll up of one mile of old fence line wire adjacent to a new wildlife-friendly fence addressed safety issues for both mule deer and pronghorn.

### ***June 15, 2016 - Bonita Grassland KJ Ranch Pasture Fence Removal/Rebuild***

Two and a half miles of fence line were replaced on a key pronghorn zone by the KJ Ranch. Materials, in the amount of \$7.9K, were paid for by the NFWF 8-year grant and all labor for the removal and reconstruction were paid for by the KJ ranch owner at the cost of \$15.4K. This project improved permeability of the area for resident pronghorn and connectivity to 2 key pastures for pronghorn. This project increased pronghorn connectivity acres by 2,600 acres.

### ***May 21, 2017 - M Triangle Ranch Water Development***

A year-around water source from an existing solar well was piped 1 mile underground to supply a 3,000-gallon storage tank. This established a permanent drinker in key pronghorn habitat. It was funded by \$6K of HPC dollars and \$21K by the landowner.

### ***July 25, 2016 – Bonita Home Place Water Development***

The KJ Ranch installed a solar pump system in an existing cased well along with installing a 5,000-gallon low profile poly storage tank. Water is pumped from the well through underground plumbing to two different water troughs. The two additional waters have developed yearlong access by wildlife to an available water source. It was funded with \$15.6K of HPC dollars and \$13K by the landowner.

### ***September 24, 2016 - Fence Modification South of the High Creek Road***

An AAF volunteer fence project was completed by 52 volunteers in the northwest portion of Game Management Unit 32, 14 miles west of Bonita. This project involved modifying 3.5 miles of existing boundary and interior fencing south of the High Creek Road. The majority of the work occurred with no vehicle access and required considerable hiking and hauling of materials, as well as clearing fences of dried tumbleweeds. This project added **4,800 acres** of pronghorn habitat connectivity.

### ***January 15, 2017 - Bonita Grassland KJ Ranch Drag Pasture Fence Rebuild***

Two and a half miles of fence line was replaced on a key pronghorn zone by the KJ Ranch in the A Drag Pasture. Materials, in the amount of \$10K, were paid for by the NFWF 8-year grant. All labor for the removal and reconstruction was paid for by the KJ ranch owner at the cost of \$13.2K. In addition to this, the rancher continued to modify fence at his own expense on 1.5 miles in order to ensure permeability around the boundary of the entire pasture. This project improved permeability of the area by **2,400 acres** and connected 2 key pastures for pronghorn.

### ***June 9, 2017 - Bonita Grassland KJ Ranch Pasture Fence Rebuild***

One mile of fence line was replaced on a key pronghorn zone by the KJ Ranch. Materials, in the amount of \$4K, were paid for by the NFWF 8-year grant, and all labor for the removal and reconstruction were paid for by the KJ ranch owner at the cost of \$7.7K. This project improved permeability of the area by **1,800 acres**. In addition to this rebuild the rancher realigned and rebuilt an additional .75-mile along the same fence line and made it permeable to pronghorn. He also modified 1 mile of ROW fence (0.5 on each side) along the adjacent road.

### ***September 30, 2017 - Fence Modification North of the High Creek Road***

An AAF volunteer fence project was completed by 41 volunteers and AGFD personnel in the northeast end of Game Management Unit 32 near Bonita. Modified was 2.6 miles of existing boundary fence between the KJ and Sierra Bonita Ranches north of the High Creek Road. This project increased pronghorn connectivity acres by **6,000 acres**.

### ***June 30, 2018 – M Triangle Ranch Fence Rebuild***

One mile of fence line was replaced on a key pronghorn zone by the M Triangle Ranch. Materials, in the amount of \$2K, were paid for by the NFWF 8-year grant, and all labor for the removal and reconstruction were paid for by the M Triangle Ranch owner. This project improved permeability of the area by **1,280 acres**.

### ***June 30, 2018 – Sierra Bonita-M Triangle Ranches Fence Rebuild***

One mile of boundary fence between the Sierra Bonita and M Triangle Ranches was replaced on a key pronghorn zone by the M Triangle Ranch. Materials, in the amount of \$3.2K, were paid for by the NFWF 8-year grant, and all labor for the removal and reconstruction were paid for by the M Triangle Ranch owner. This project improved permeability of the area by **2,560 acres**.

### ***September 28-29, 2018 - Southwest of Bonita Fence Project***

An AAF fence project was completed by 23 volunteers and AGFD personnel southwest of Bonita. On Friday of this two-day project, mesquite and other brush were removed along the fence lines. On Saturday, 1.9 miles of fence was modified. This fence location was in the middle of two pastures that had active mesquite removal in the past two years. This project improved habitat connectivity by an additional **3,800 acres**.

### ***April 13, 2019 - Sierra Bonita Ranch Boundaries Fence Modification***

An AAF fence modification and removal project was completed by 26 volunteers in an area 8 miles southwest of Bonita on the Sierra Bonita Ranch. The project modified 3 miles of existing boundary fence line. Multiple sightings of pronghorn occurred throughout the weekend and a group of animals came up from the north to stand near the volunteer's work. This project increased permeability and connectivity for pronghorn on a minimum of **5,750 acres**.

### ***May 9, 2019 - Bonita Grassland Black Pasture, A Drag Ranch Boundary Fence Rebuild***

The ranch owner of the A Drag Ranch completed full replacement of 3.75 miles of ranch boundary fence near Bonita, Arizona. NFWF 8-year grant funds in the amount of \$4K were utilized to purchase materials towards a \$44.9K total project cost, \$40.9K match by the landowner. This total fence replacement improved permeability and connectivity on **7,200 acres** and allows pronghorn to move freely between two large ranches.

## **GRASSLANDS (see Map #2, Page 73 & 2012 Article & Photos, Pages 77-78)**

### ***October 3, 2013 - Bonita Phase 2***

A mesquite removal project improved **825 acres** on the Haus ranch in the Bonita grasslands zone. AGFD pronghorn tag funds, in the amount of \$15K, were used in addition to other funds to accomplish this project.

### ***December 8, 2014 - Bonita Phase 3***

A mesquite removal project improved **610 acres** on the Black Ranch in the Bonita grasslands zone. The project was accomplished with funding from AGFD pronghorn tag dollars in the amount of \$15K, mule deer funds in the amount of \$9K, and NFWF 8-year grant funds in the amount of \$6K, in addition to other funds. While the project occurred in January and February of 2013, the final report was received in December, 2014 and is thus recorded here.

### ***January 4, 2016 - Bonita Phase 4***

A mesquite removal project improved **480 acres** on the KJ Ranch Windmill Pasture in the Bonita grasslands zone. The project was accomplished with AGFD pronghorn tag dollars in the amount of \$15K, mule deer funds in the amount of \$15K, and \$36K of NFWF 8-year grant funds, in addition to other funds. While the project occurred in 2014 and 2015, the final report was received in January, 2016 and is thus recorded here.

### ***January 10, 2016 - Bonita Phase 5***

A mesquite removal project improved **1600 acres** on the East McQuiggan Pasture in the Bonita grasslands zone. The project was accomplished with AGFD pronghorn tag dollars in the amount of \$15K, mule deer funds in the amount of \$15K, and \$30K of NFWF 8-year grant funds, in addition to other funds.

### ***2017 - Bonita Phase 6***

Grassland work (mesquite grubbing/removal) occurred in the Bonita herd unit this year. However, AGFD Pitman-Robertson federal funds were used (as opposed to HPC or NFWF 8-year grant funds) to treat these 1,100 acres on the north Tumbleweed Pasture. Thus, no new acres were added to the grants total this year, but steady progress is being made in the Bonita herd zone towards grassland restoration.

### ***April 10, 2018 - Bonita Phase 7***

A mesquite removal project improved **585 acres** of the southwest Tumbleweed Pasture on the Bonita Ranch in the Bonita grasslands zone. The project was accomplished with AGFD pronghorn tag dollars in the amount of \$15K, mule deer funds in the amount of \$15K, and \$20K of NFWF 8-year grant funds, in addition to other funds.

### ***June 10, 2018 - Bonita Phase 8***

A mesquite removal project improved **655 acres** of the southeast Tumbleweed Pasture on the Bonita Ranch in the Bonita grasslands zone. The project was accomplished with AGFD pronghorn tag dollars in the amount of \$15K, and mule deer funds in the amount of \$15K, in addition to other funds.

### ***July 12, 2019 - Windmill Pasture Herbicide Spot Treatment KJ Ranch***

The owner of the KJ Ranch completed herbicide treatment (using Velpar) on second generation growth mesquite on **480 acres** near Bonita. The project was funded by AGFD pronghorn tag dollars in the amount of \$16K and \$7.5K of NFWF 8-year grant funds, in addition to the ranch owner's contribution of \$16.5K. This project is expected to maintain the grassland condition of this pasture into the future.

## **FIELD TRIP**

### ***September 23, 2016***

Twenty-four attendees, including Board members from the AAF and Tucson Mule Deer Association, as well as AGFD personnel, participated in an afternoon field trip to the Bonita grasslands area of southeastern Arizona, northwest of Willcox. The restoration goal for this area is 20,000 acres of restored grassland to be accomplished by removing invasive mesquite trees. As of the writing of this report, over 15,000 acres have been restored since 2010. Multiple funding sources have been used to achieve this level of progress including \$126K from the AAF's NFWF 8-year grant, \$182K from the AGFD Habitat Partnership antelope and mule deer funds, and \$751K from the AGFD Wildlife Habitat Enhancement Initiative for a grand total of \$1.059M.

## **PRONGHORN POPULATION TRANSPLANTS, SURVEYS, & ENHANCEMENTS**

### ***November 14, 2018 - Glassford Hill-Prescott Valley Capture Fence Construction Project (See photos, Page 79)***

Forty-four individuals including AGFD personnel, AAF Board members, and other volunteers met in Prescott Valley, Arizona for this effort. The group volunteered 483 hours and drove 5,631 miles in support of this project as in-kind contributions to match the grant. The group constructed the capture fence wings of a pronghorn trap. The trap is to be used to capture 50 urbanized pronghorn in January, 2019. A portion of the captured pronghorn will be translocated to three areas north and northwest of Willcox, Arizona to bolster the resident populations with additional numbers and genetic diversity. Each of those three release sites will have 5 pronghorn that are radio-collared to provide seasonal habitat use information for 24 months post-release. The data will be uploaded at least 4 times daily and will be periodically analyzed by the project's GIS specialist. The objective is to learn where pronghorn are breeding and fawning, and to identify the key zones they utilize for foraging in the winter and summer months. Two of the release sites are to be in the Bonita herd zone. Prior to this release, the last time pronghorn were reintroduced to Bonita area was in the 1940s.

### ***January 22-24, 2019 - Glassford Hill-Prescott Valley Pronghorn Capture and Successful Transport to Southeastern Arizona Release Sites (See photos, Page 80)***

On the first two days of this project, AAF Board members, 42 AGFD employees, and 28 additional volunteers constructed the final corral trap to capture pronghorn from the heavily urbanized Glassford Hill area in Prescott Valley. These two trap building days followed the previous November's construction of the capture fence wings, which was accomplished by 44 AGFD personnel and volunteers. The purpose of this capture project was two-fold:

1) "Rescue" a subpopulation of 75 pronghorn that had become surrounded by 360 degrees of subdivisions and major highways. The herd had decreased in population from 100 to 75 animals in just one year due largely to vehicle collisions; and 2) Release the captured animals into five pronghorn sub-populations in southeastern Arizona to bolster individual herd numbers and genetic diversity. Three of the releases will be to be north, east, and west of Willcox, one release will be in the San Bernardino Valley northeast of Douglas, and one release will occur in the southern Altar Valley on the Buenos Aires Wildlife Refuge southwest of Tucson.

January 24th was a cold morning when volunteers and AGFD personnel gathered at 7AM in a large parking lot in the center of Prescott Valley. Carpools were formed to travel to an area near the capture site. After arriving, participants walked to the trap site and received their individual job assignments. Volunteers were divided into four teams, two of which were stationed in large ditches (alleys) with fence construction materials. Their job was to build a temporary woven wire fence in the alleyway after pronghorn had passed that location. The other two teams were stationed on both sides of the capture alley behind the ditches, hiding in the nearby brush to become "drivers".

Everyone was breathless with anticipation when the chopper fired up and began gathering up the nearby herd of pronghorn. Each time the helicopter noise got nearer, everyone thought “this is it!” only to be disappointed when the chopper noise faded away. Finally on the 3<sup>rd</sup> or so pass, everything clicked and 55 pronghorn headed into the wing trap and down the alley. On command, everyone exited and quickly assumed their positions. The woven wire fence went up in less than a couple minutes with the drivers now facing the alley. It didn’t take long before the herd turned and started back up the alley, attempting to escape. As planned, they were faced with a solid wall of humans waving their arms and walking slowly down the alley toward the trap. Eventually the alley trap doors were swung shut and the herd was driven into the capture/mugging pens. Success!

After an hour’s “calming down period,” there were several hours of processing the pronghorn including individually classifying, assessing, and ear tagging 45 animals. This included determining which ones were to receive radio collars and to which of the five release groups they would be assigned. As each animal finished the process, they were loaded into the various transport cages and trailers for their 350-mile ride south to their respective designated release zones. Finally in the late afternoon, vehicles started south to their respective release sites. The Buenos Aires release of four mature pregnant does, two equipped with radio collars, went off without a hitch later that evening. The Willcox pronghorn and crew spent the night in Benson and Willcox for releases the next morning at Bonita and the Monk Ranch as well as Allen Flat. That same morning, four mature pregnant does without collars were released in the center of the San Bernardino Valley by Douglas area Wildlife Manager, Mike Richins.

We were fortunate to be at two of the releases, the first at Allen Flat and the second at Monk Ranch as depicted by photos of two of the release teams. Yes, those are very big, relieved, and happy smiles by all! (See photos, page 80.) Each of the three Willcox area releases had 5 pronghorn that were radio-collared to provide seasonal habitat use information for 24 months post-release. The data will be uploaded at least 4 times daily and will be periodically analyzed by the project’s GIS game specialist. The focus will be on learning where resident pronghorn are breeding and fawning, and the key zones they utilize seasonally for foraging. The first—and last—time pronghorn were reintroduced into this herd was in 1944 and 1945, when a total of 46 pronghorn from the Anderson Mesa were released in the area.

Post-release monitoring of mortalities showed that one mature doe died in transport and one buck and one collared doe at the Bonita release site died within 72 hours after being released, most likely of capture myopathy. This percentage of transplant mortality is well within acceptable biological limits. The good news is that all the other pronghorn released with collared animals have been observed upright and healthy, and have mixed in with groups of resident pronghorn. As demonstrated in the two maps accompanying this report, all translocated pronghorn are very busy exploring the boundaries of what is considered to be the available pronghorn habitat, and in some cases, beyond. In an extreme case, as this article was originally going to press on April 2, 2019, a mature buck, released in the Allen Flat area northwest of Willcox, started a 70-mile “walk about” on Saint Patrick’s Day. He is now located on the north side of the Gila River northeast of Safford, likely enroute the Eagle Creek area. He is certainly puzzling a number of wildlife biologists. Coincidentally, at the time of capture he was growing only a single horn; hence this vagabond has now earned the nickname, “One Horn”.

All volunteer work hours and mileage contributed have been used as an in-kind financial match for the 8-year, Southeastern Arizona Pronghorn Enhancement Project, funded by the NFWF and the AGFD Habitat Partnership program under the grant entitled “*Southern Arizona Grasslands Pronghorn Initiative.*” This successful capture and the attendant releases had been planned for many years as part of the grant’s population augmentation objectives. These releases represent a major capstone, supplementing existing pronghorn sub-populations in areas where 10 years were spent in habitat improvement efforts including improving waters, removing mesquite, and removing, replacing, or modifying over 30 miles of fence.

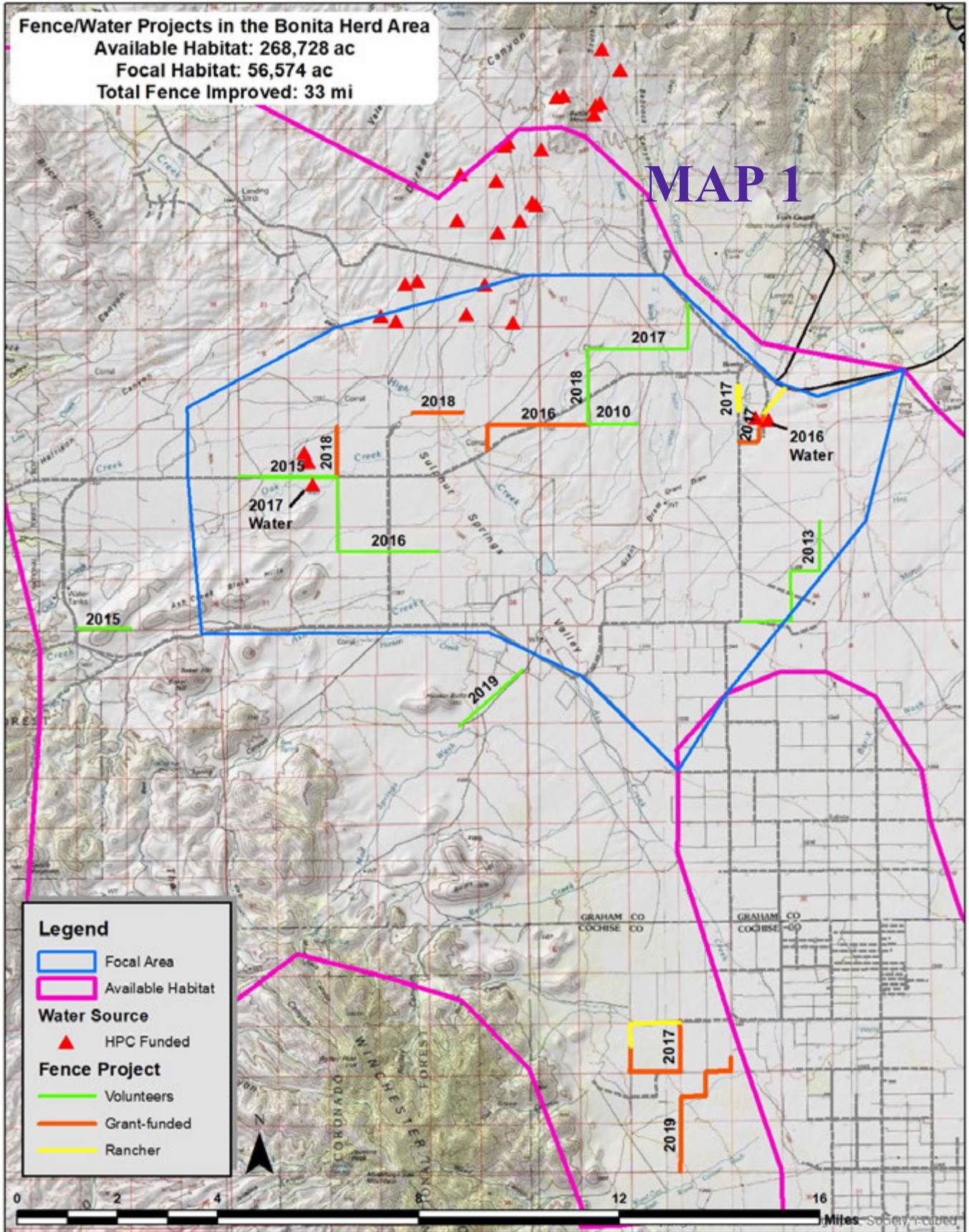
The AGFD is to be commended for this capture, especially given the urban human and social dynamics associated with its location. The Kingman Regional office and field staff did a superb job of informing local residents of the need to remove most of the pronghorn, as well as their usefulness to bolstering southeastern Arizona’s herds. The AAF is to be commended as well. In particular, AAF Charter Member and Past President, Jim McCasland worked tirelessly bringing this herd’s perilous condition to the forefront. Thank you, Jim!

## **SUMMARY**

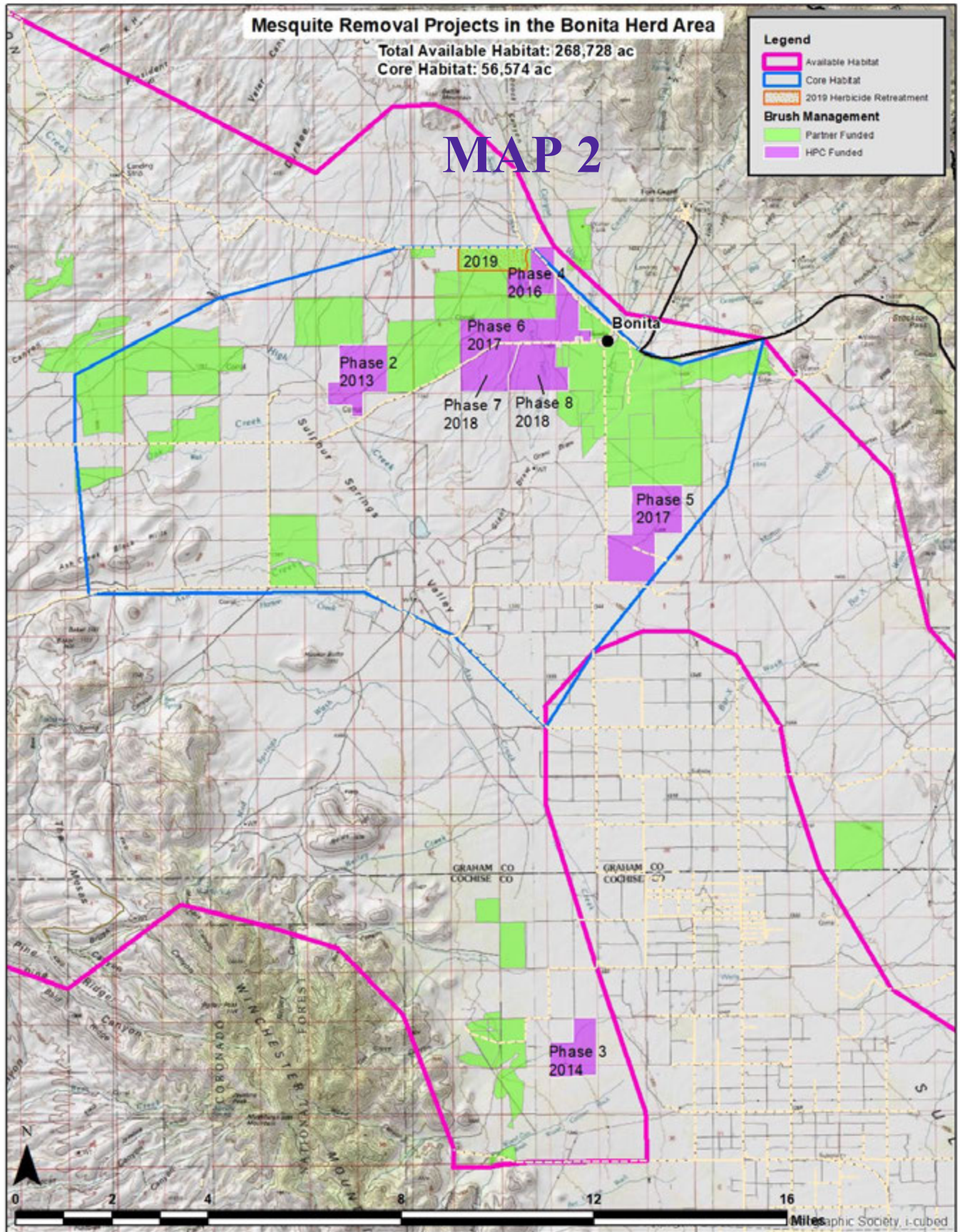
As noted above in January, 2019, 23 pronghorn captured near Prescott Valley, Arizona were released at two sites in the Bonita grasslands complex; 12 near Bonita and 11 on the Monk Ranch, 10 miles southeast of Bonita (see photos, pages 79-80). This included 8 bucks and 15 does of which 5 were radio collared in each of the two groups. The 10-radio collared pronghorn have explored all of the current occupied pronghorn habitat and have integrated themselves into the remnant population (see Map #4, page 75).

Survey data for the last 10 years have shown a fairly resilient population number but well below the minimum grant population objective of 125 individuals for most years. The August, 2019 aerial survey was 162, a record high number of survey observations since 2009 (see Map #3, page 74). Following approved scientific protocols, this herd zone received seasonal pronghorn fawning enhancement coyote treatment in 2016, 2017, and 2018. The long-term outlook for this herd zone is now excellent with improved and expanded grassland habitat, all of which is permeable and pronghorn friendly.

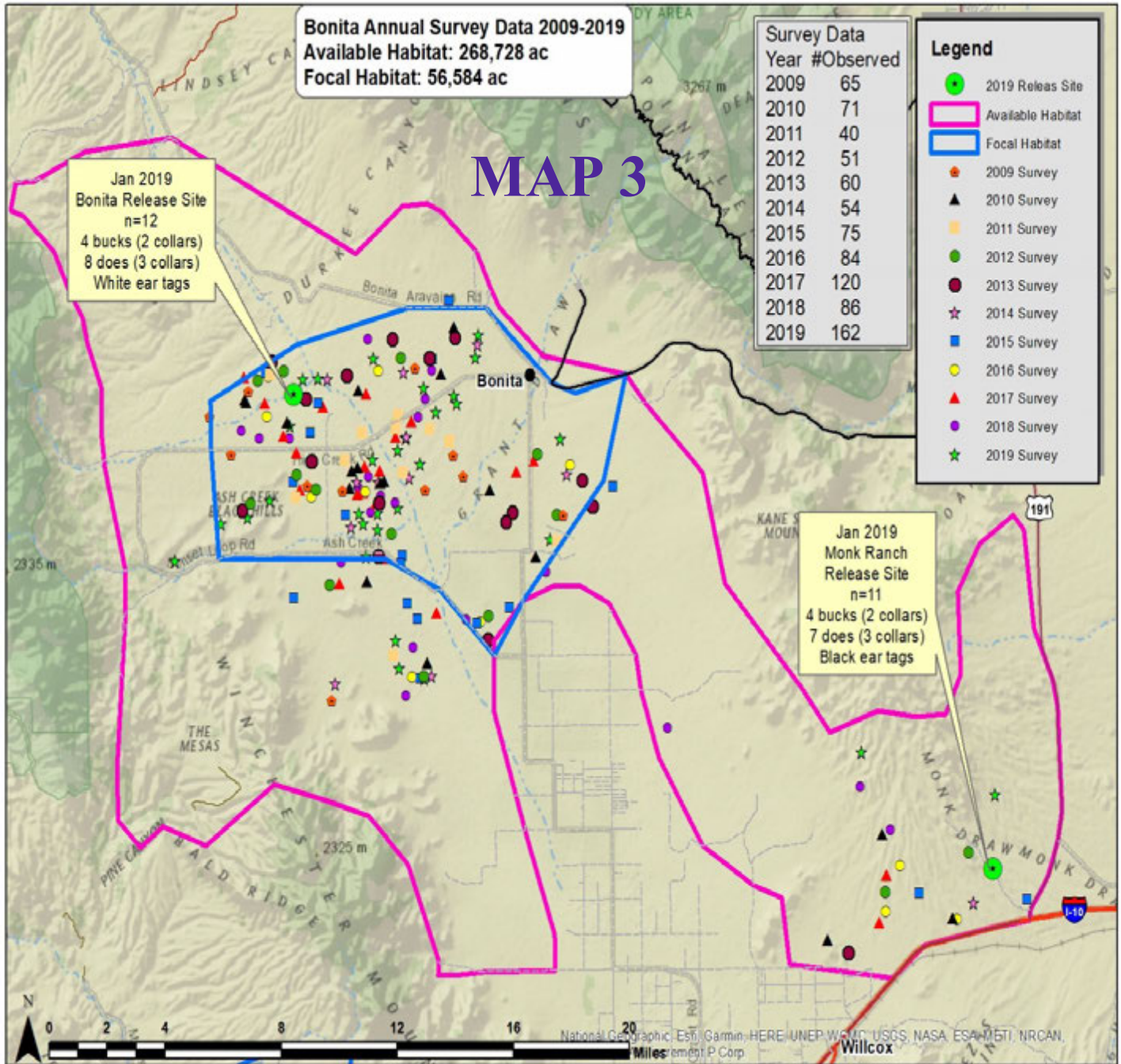


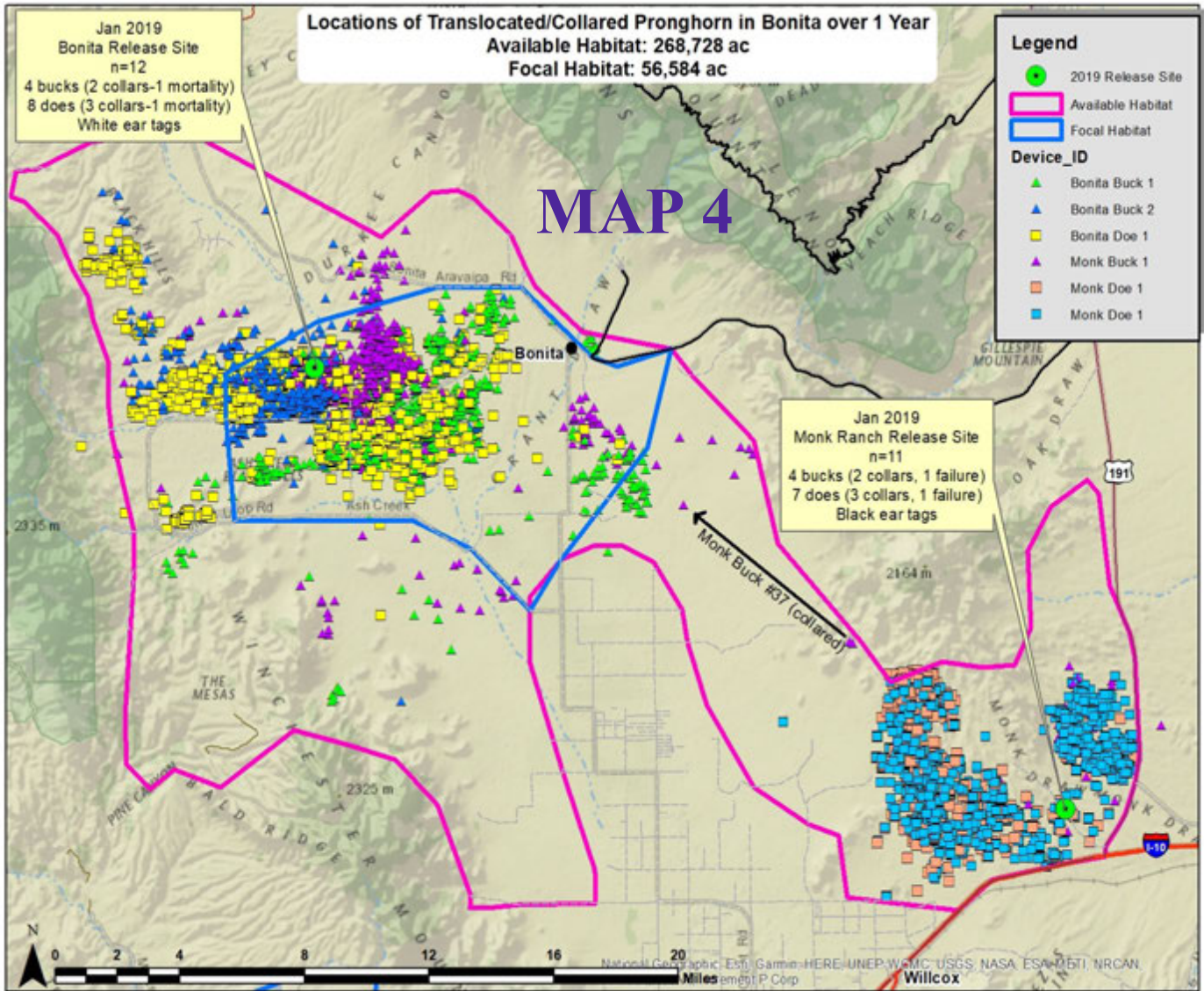
















# BONITA VOLUNTEERS

2013-2018





# SPECIAL TAG FUND PROJECT COMPLETION

## JOHN BACORN, AZGFD

The AAF chose Bonita Ranch Grasslands Restoration Phase I as a project to be funded with special tag funds through the HPC process. This project was completed in March of 2012. Individuals and agencies involved with the project included AGFD, Natural Resource Conservation Service (NRCS), and Mr. Jeff Hornack ( lessee / landowner).

A total of 320 acres of mesquite invaded desert grassland habitat was grubbed with an excavator and all carcasses were piled into piles which will be burned at a later date.

Besides the grubbing and piling of mesquites, included within the contract is that the area will be rested from grazing for two consecutive years during the growing season.

This project involved 320 acres of a 3000 acre pasture. A continuation of this project is planned and funded through NRCS for an additional 1100 acres to be grubbed this year (2012).

Specific grazing practices were outlined within the NRCS contract. NRCS personnel have the primary responsibility for monitoring compliance with the NRCS contract.

AGFD personnel will periodically visually monitor vegetation response from the practices. AGFD also annually surveys this area for pronghorn antelope and have initiated a Quail Call Survey to monitor any response of Scaled and Gambel quail to the practices.





*2012 Bonita Grassland  
Mesquite Removal*



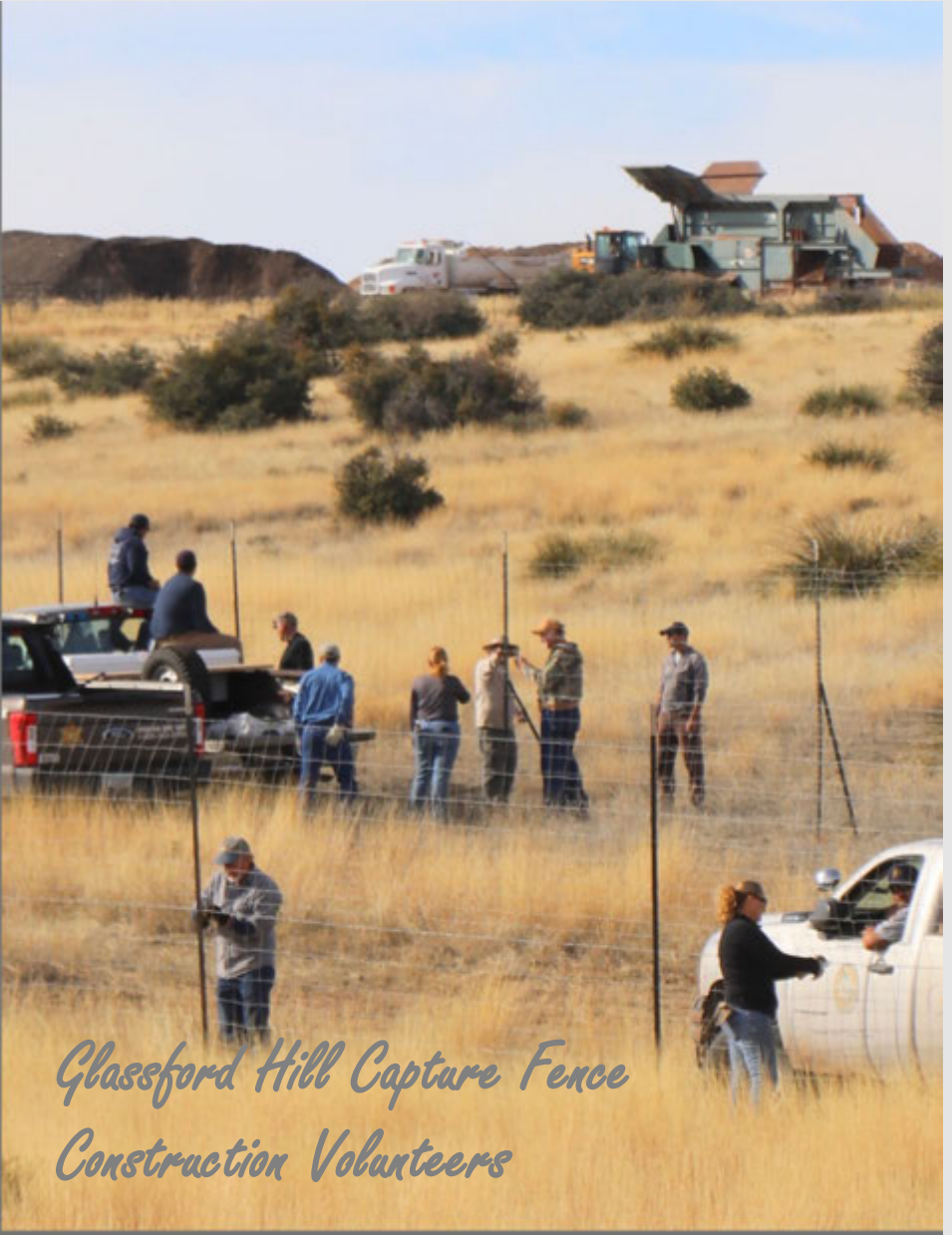
08/04/2017



04/19/2018







*Glassford Hill Capture Fence  
Construction Volunteers*



*November 2018*



***DEDICATED AGFD PROFESSIONALS***



*Glassford Hill Capture and Release  
January 2019*

## **ALLEN FLAT HERD ZONE**

### **68,225-Acres**

#### **OVERVIEW**

The Allen Flat area is considered historic pronghorn habitat. Data show pronghorn were absent by 1930. In 1943 to 1945, 70 pronghorn were reintroduced in the upper Sulphur Springs Valley (Bonita herd zone) on six different occasions. These pronghorn came from the AGFD's Raymond Ranch Antelope Refuge east of Flagstaff. Occasional sightings of pronghorn on Allen Flat occurred in the early 1950's. In an AGFD survey in June of 1954, 27 pronghorn were confirmed on the north end of Allen Flat, with four more observed seven air miles northwest of Allen Flat. Connectivity was identified as a possible issue when the NFWF 8-year grant began in 2012 and was confirmed by observing the movement data from 5 newly released, collared animals in the spring of 2019. These fences were addressed in 2019 as outlined in the project statements below. Water distribution is considered very secure due to multiple ranchers running pipelines from wells to dozens of livestock water troughs. Grasslands in the north half of the valley are in good condition and are maintained by rigorous grazing regimes practiced by resident ranchers. A portion of the valley's southern acreage would benefit from mesquite treatment.

#### **PROJECTS (See Photo, Page 86)**

##### ***September 27-28, 2019 - Allen Flat Ranch Boundaries Fence Modification & Fence Materials Purchase for 3 Ranches***

A successful AAF fence modification/removal project was completed by 27 volunteers in southeastern Arizona on Allen Flat, 20 miles northwest of Willcox in game management unit 32. Three miles of existing boundary fence on the 3-Links Ranch were modified by removing the bottom barbed wire strand and replacing it with smooth wire. Additionally, another 1.5 miles of fence on an adjoining ranch was modified by raising the smooth bottom strand up to 16 inches from a 10-inch installed height.

Separate from the work described above, the remaining \$23K of our NFWF 8-year grant funds were used to purchase 7 miles of new fence materials. Materials were delivered to the Warbonnet/Dobson Cattle and Dos S Land & Cattle ranches for 7 miles of prioritized fence removal/replacement, including ranch boundaries and interior fences. The Allen Flat volunteer project and the fence replacement on the three ranches increased permeability/connectivity for pronghorn on a minimum of 13,500 acres. This effort was in direct proximity to where 12 captured pronghorn from Prescott Valley, Arizona were released in January 2019. Five transplant pronghorn were radio collared allowing the data to be utilized to determine where the top priority fencing choke points would need to be modified or replaced. Informed by these data, the efforts of volunteers, ranchers, and AGFD personnel have made the central 13,500 acres of Allen Flat now completely permeable to resident pronghorn (see Map #1, page 83).

## **INTENSIVE VOLUNTEER PRONGHORN GROUND SURVEYS**

### **July 21, 2018 - 1<sup>st</sup> Allen Flat Pronghorn Fawn Saturation Survey**

The 1<sup>st</sup> annual Allen Flat pronghorn fawn saturation survey was conducted in the summer of 2018. This survey involved 15 volunteers led by Region V Game Specialist, Rana Tucker and Arizona Antelope Foundation (AAF) Field Manager, John Millican. The volunteers were from both AGFD and the AAF. While the July 21<sup>st</sup> survey netted 26 pronghorn, the August 2018 AGFD aerial survey recorded 42 animals and a 28% fawn success rate. Allen Flat had only 24 pronghorn three years ago and is scheduled for a supplemental release of 15 additional animals in January of 2019.

### **July 7, 2019 - 2<sup>nd</sup> Allen Flat Pronghorn Fawn Saturation Survey**

In the summer of 2019, the 2<sup>nd</sup> annual Allen Flat pronghorn fawn saturation survey was conducted. This survey involved 12 individuals led by Region V Game Specialist, Rana Tucker and AAF Field Manager, John Millican and again, included volunteers from both AGFD and AAF. The morning survey netted 32 pronghorn with a 39% fawn success rate. The August 2019 AGFD aerial survey recorded 70 animals and a 28% fawn success rate. This area had 24 pronghorn four years earlier and received a supplemental release of 12 animals in January of 2019.

## **PRONGHORN POPULATION TRANSPLANTS SURVEYS & ENHANCEMENTS**

In January 2019, 12 pronghorn were captured near Prescott Valley, Arizona and released on the north end of Allen Flat. This included 5 bucks and 8 does. Five of the animals were radio collared. The radio collared pronghorn have explored all of the current occupied pronghorn habitat and have integrated themselves into the remnant population (see Map #2, page 84).

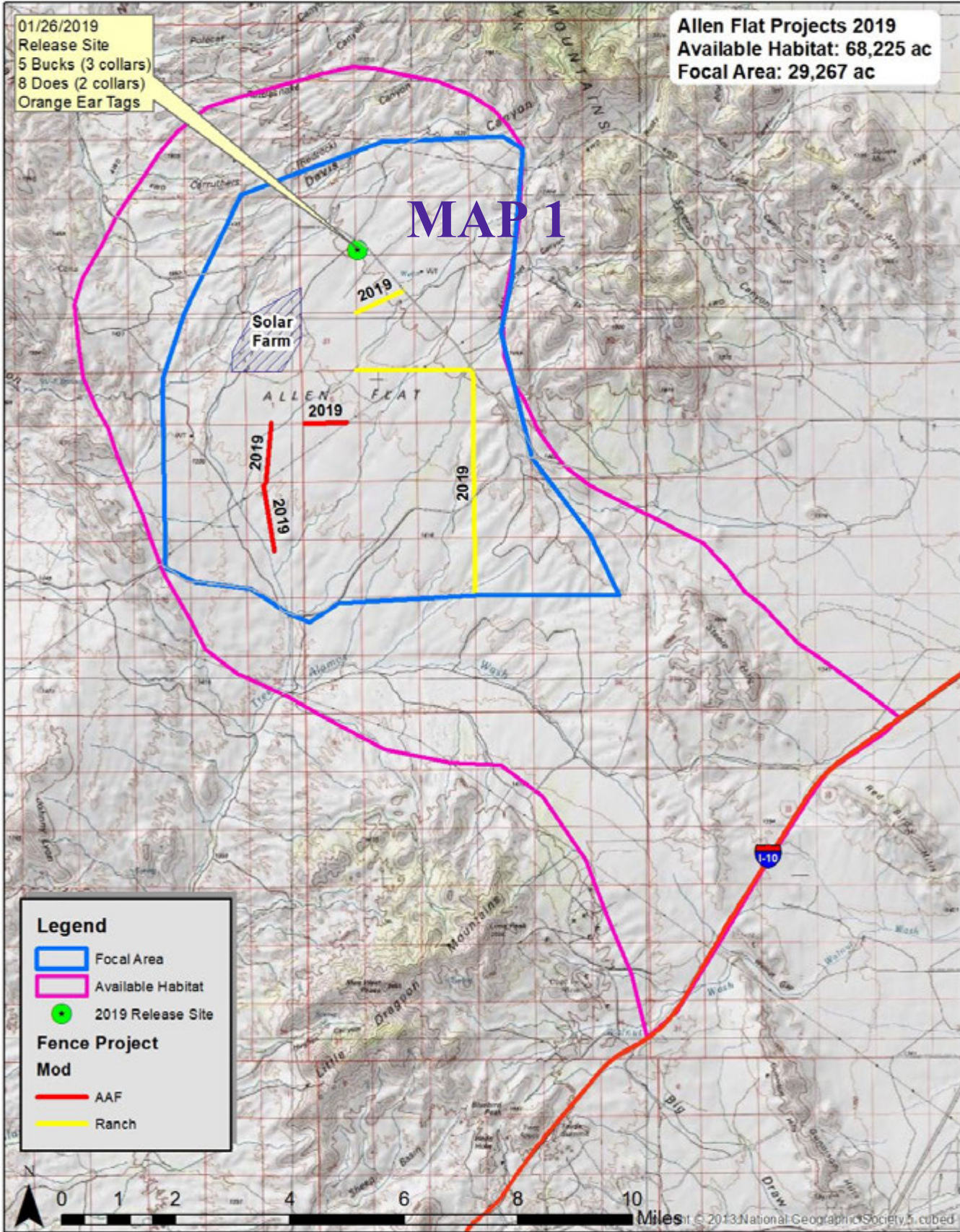
Survey data for the last 10 years have shown population numbers well below the minimum grant population objective of 125 individuals. At the beginning of the project in 2012, the number of pronghorn was 26. Currently, based on the 2019 survey, a minimum of 70 pronghorn are present (see Map #3, page 85). Following approved scientific protocols, this herd zone received seasonal pronghorn fawning enhancement coyote treatment in 2016, 2017, and 2018. We are optimistic that with these treatments and good seasonal moisture, this herd can reach the minimum population objective of 125 in 3 to 5 years.



01/26/2019  
 Release Site  
 5 Bucks (3 collars)  
 8 Does (2 collars)  
 Orange Ear Tags

Allen Flat Projects 2019  
 Available Habitat: 68,225 ac  
 Focal Area: 29,267 ac

# MAP 1



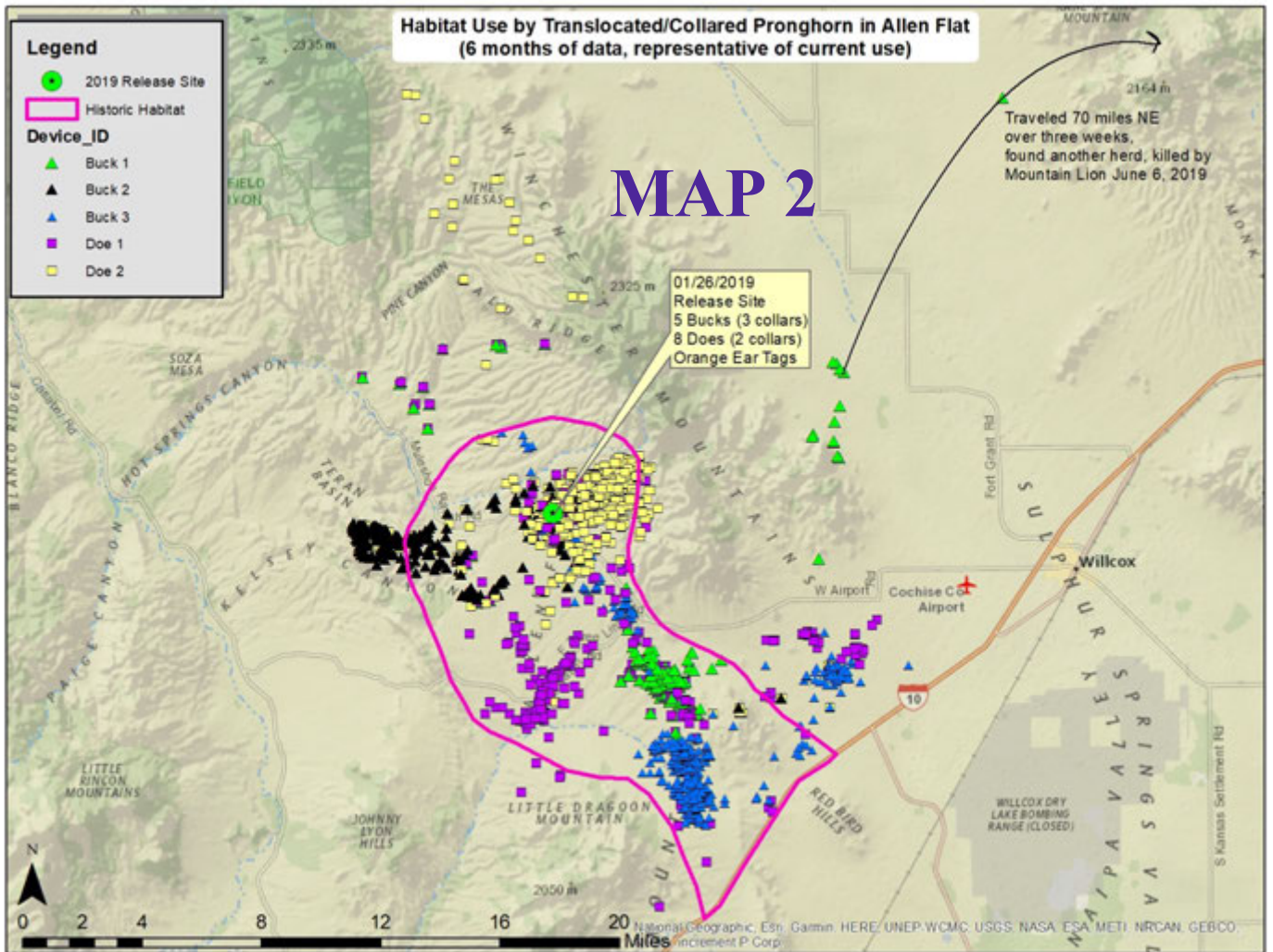
**Legend**

- Focal Area
- Available Habitat
- 2019 Release Site

**Fence Project Mod**

- AAF
- Ranch







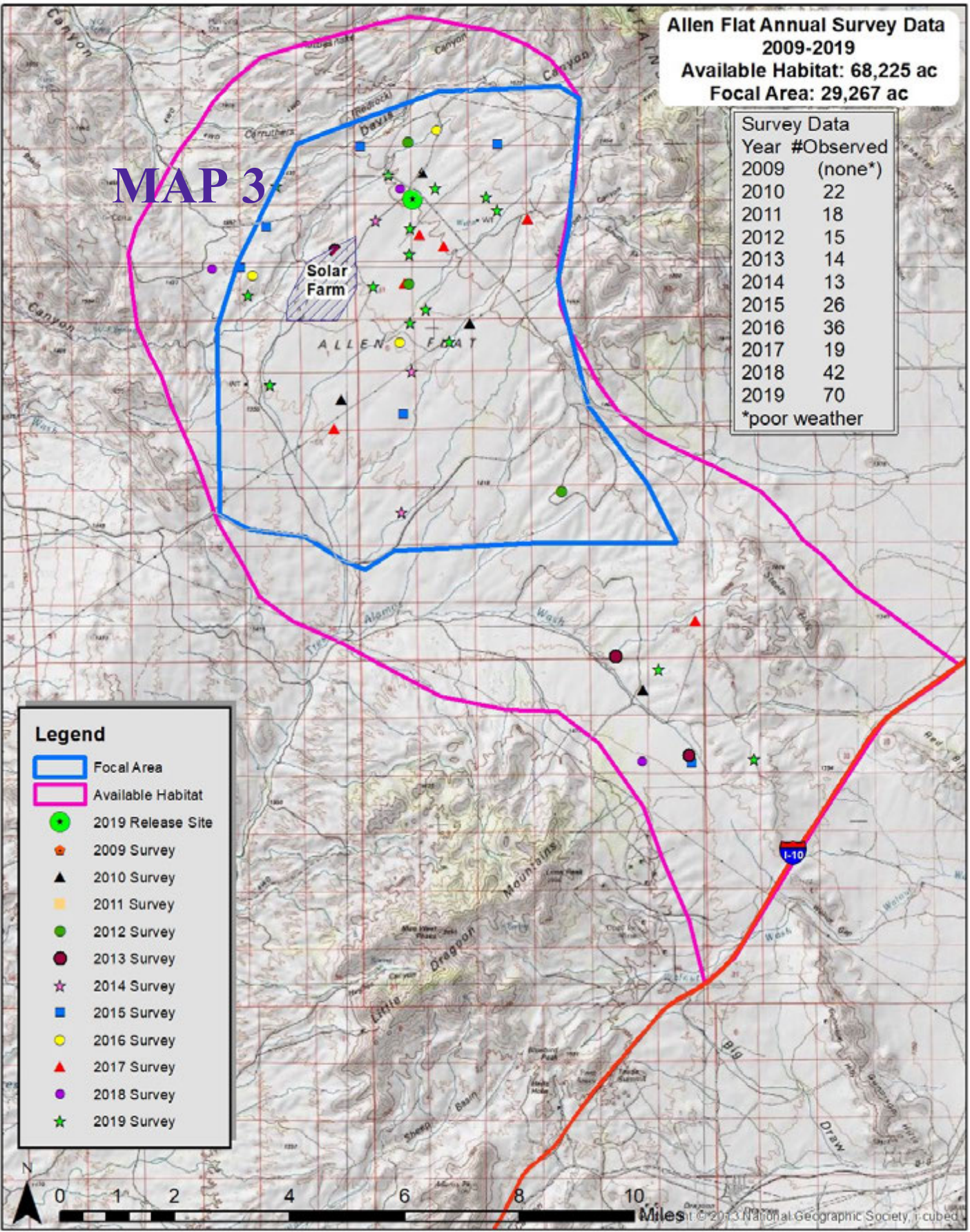
# MAP 3

**Allen Flat Annual Survey Data  
2009-2019**  
**Available Habitat: 68,225 ac**  
**Focal Area: 29,267 ac**

Survey Data	
Year	#Observed
2009	(none*)
2010	22
2011	18
2012	15
2013	14
2014	13
2015	26
2016	36
2017	19
2018	42
2019	70
*poor weather	

**Legend**

- Focal Area
- Available Habitat
- + 2019 Release Site
- + 2009 Survey
- ▲ 2010 Survey
- + 2011 Survey
- 2012 Survey
- 2013 Survey
- ☆ 2014 Survey
- 2015 Survey
- 2016 Survey
- ▲ 2017 Survey
- 2018 Survey
- ☆ 2019 Survey







*Allen Flat Volunteers*



# **SAN BERNARDINO VALLEY HERD ZONE**

## **142,298 Acres**

### **OVERVIEW**

The San Bernardino Valley was historic pronghorn habitat, but by 1930, pronghorn were completely absent. In 1984 and 1986, the AGFD reintroduced 113 pronghorn from Marfa, Texas. Connectivity was not identified as a significant limiting factor based on valley-wide pronghorn distribution during surveys and substantiated by replacement of nearly 5 miles of pronghorn friendly fence by multiple ranches. However, two fence projects were completed to address north/south pronghorn crossings in two key zones. A total of 4.75 miles of fence were modified or replaced which increased overall connectivity by 10,000 acres. Water distribution and security was considered adequate but some improvement was needed in the central part of the valley. Four water projects were completed to address this need. Grasslands in this valley are primarily maintained by the rigorous scientific fire and grazing regimes practiced by ranchers from the Malpai Borderlands Conservation Group. Additionally, much of the herd zone's acreage are now under conservation easements held by the Malpai Borderlands Conservation Group. The San Bernardino Valley pronghorn population has met the grant's minimum herd population of 125 animals since 2015.

### **PROJECTS (see Map #1, page 89)**

#### ***September 2012 - AAF Volunteer Fence Project at Malpai Ranch***

An AAF Volunteer Fence Project, in which **3.1 miles** of fence were modified, was completed by 30 adults and U of A students. As a result of this project, pronghorn connectivity was improved on **4,000 acres** of occupied habitat on the south end of the San Bernardino Valley. This travel corridor project helped to ensure unrestricted connectivity of the southern end of the available pronghorn grassland habitat (see Map #1, page 89, & Photo, page 91).

#### ***August 2013 - Malpai/IV Bar Headquarters Tanks Water Projects***

Utilizing \$7.4K of HPC pronghorn and mule deer funds, 2 major dirt tank cleanouts were completed; one on the Malpai Ranch and a second on the IV Bar Ranch in the central plains of the San Bernardino Valley. Both earthen tanks are located where 25% of the valley's pronghorn occur seasonally and year long. After the cleanouts, the two tanks had the capacities to hold 8M and 5M gallons of water respectively (see Map #1, page 89, & Photo, page 92).

### ***December 2014 - Ten X and Geronimo Ranches Fence Rebuild***

**Two miles of fence line** were replaced in a key pronghorn zone between the Ten X and Geronimo ranches in 2014. Materials, in the amount of \$6.4K were paid for by the NFWF grant and all labor for the removal and reconstruction was paid for by the ranches. This project increased permeability of the area by **6,000 acres** and connected 2-key pastures for pronghorn (see Map #1, page 89).

### ***November 2016 - Water Project Ten X Ranch***

The AAF received an Arizona License Plate Conservation Grant in the amount of \$10,400. The grant was awarded to do a major dirt tank cleanout on the Ten X Ranch in the central plains of the San Bernardino Valley. The earthen tank is located in a high-density pronghorn zone. The tank will provide water to fawning pronghorn does in the months of April, May, and June. Work was completed in March 2017 and the tank filled with over 1M gallons of water during the monsoon rains of July-September (see Map #1, page 89).

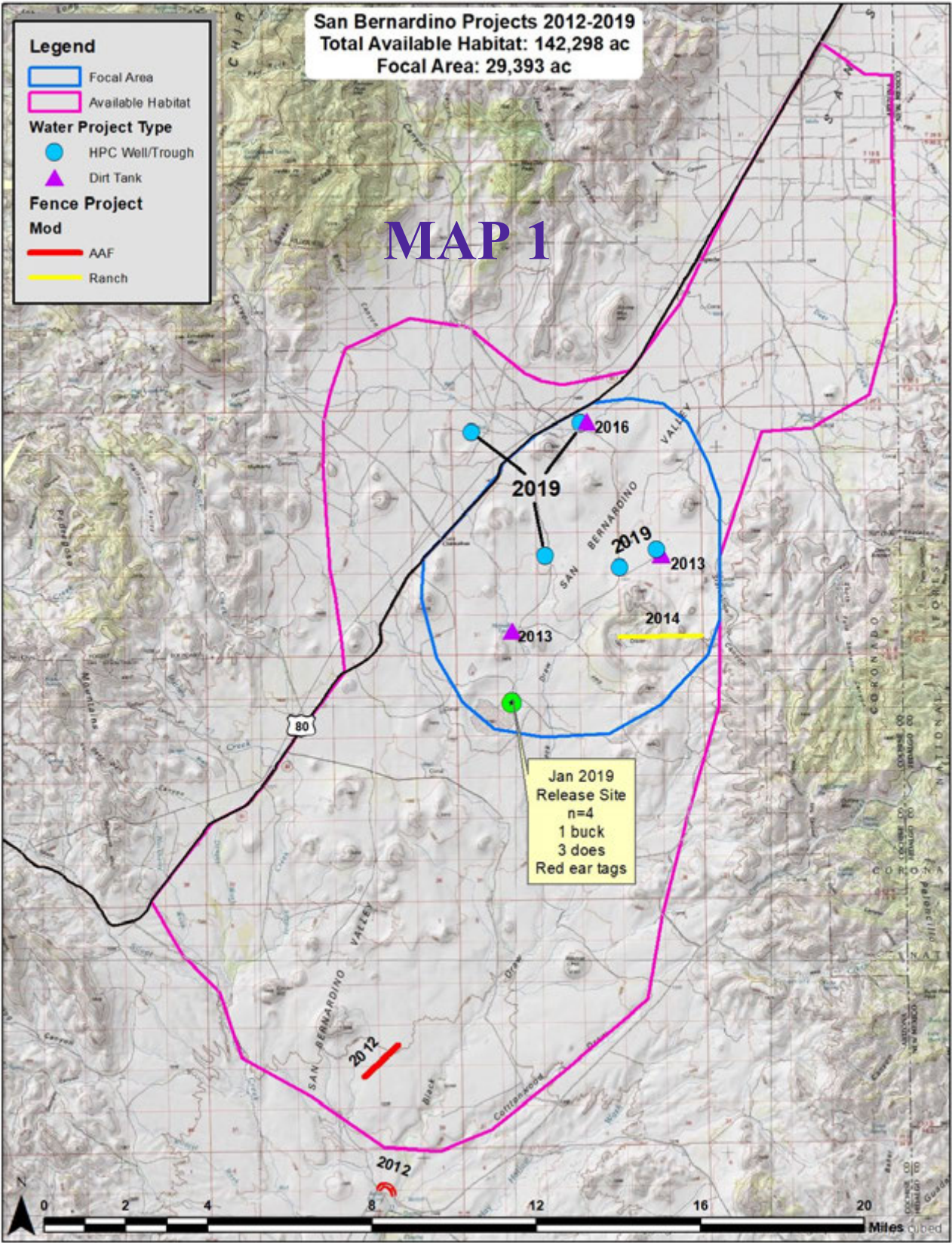
### ***May 2019 - A Solar Well Upgrade in the Back Pasture on the Ten X Ranch***

A solar well upgrade, funded by the landowner and pronghorn and mule deer HPC funds, was completed in the Back Pasture on the Ten X Ranch in the central plains of the San Bernardino Valley. The well is located in one of the highest resident pronghorn population zones and serves a critical role in piping water to 4 trough locations and providing water to fawning pronghorn does in the months of April, May, and June (see Map #1, page 89).

## **PRONGHORN POPULATION TRANSPLANTS, SURVEYS, & ENHANCEMENTS**

In January 2019, the AGFD captured 44 pronghorn near Prescott Valley, Arizona. Four of these animals (1 buck and 3 ear-tagged does) were released in the San Bernardino Valley. Survey data from the last 10 years has shown a resilient population number which generally meets the minimum grant population objective of 125 individuals. The AGFD's August 2019 aerial survey recorded 203 pronghorn, which was the highest number since 2004 (see Map #2, page 90). Following approved scientific protocols, the herd zone received seasonal pronghorn fawning enhancement coyote treatment in 2014, 2015, 2016, and again in 2019. With these treatments and good seasonal moisture, this herd has the capacity to remain above the minimum population objective of 125 individuals.







**San Bernardino Annual Survey Observations 2009-2019**  
**Total Available Habitat: 142,298 ac**  
**Focal Area: 29,393 ac**

**MAP 2**

**Legend**

- Focal Area
- Available Habitat
- ★ 2009 Survey
- ▲ 2010 Survey
- 2011 Survey
- 2012 Survey
- 2013 Survey
- ☆ 2014 Survey
- 2015 Survey
- 2016 Survey
- ▲ 2017 Survey
- 2018 Survey
- ★ 2019 Survey
- Water Project Type**
- HPC Well/Trough
- ▲ Dirt Tank
- Fence Project Mod**
- AAF
- Ranch

**Survey Data**

Year	#Observed
2009	164
2010	178
2011	60
2012	71
2013	85
2014	76
2015	142
2016	197
2017	167
2018	167
2019	203

Jan 2019  
 Release Site  
 n=4  
 1 buck  
 3 does  
 Red ear tags







# Malpai Cooperative Fence Project

September 2012





**Malpai Tank Cleanout July 2013**



**Malpai Tank and Overflow, December 2013**

# **ALTAR VALLEY HERD ZONE**

## **40,484-Acres**

### **OVERVIEW**

The Altar Valley was historic pronghorn habitat and pronghorn were last observed in 1933. In response, the AGFD transplanted a total of 192 animals to Altar Valley in 1945, 1987, and 2000. All of these transplants resulted in minimal survival success. Today, the pronghorn population in Altar Valley is struggling. The population is currently estimated to be fewer than 25 individuals and the AGFD's annual August aerial surveys indicate a downward population trend. Many factors contribute to this decline including long-term mesquite encroachment, travel corridor restrictions, predation, water availability, and long-term drought. The AGFD has renewed efforts with the Buenos Aires National Wildlife Refuge (BANWR) and neighboring ranches to implement habitat improvement projects that will benefit these pronghorn in order to increase their population. From 2008 to 2018 improvements on the BANWR included clearing 4,635 acres of mesquite, adding 5 new permanent waters, and clearing 386 acres on the Santa Margarita Ranch. An additional 200 acres of mesquite were cleared on the BANWR using chainsaws and herbicide. Additionally, since 2015 the Friends of BANWR volunteer group have completely removed 180 of 200 miles of unneeded internal pasture fence. Also, four mature doe pronghorn, captured in Prescott Valley by the AGFD, were released in the Altar Valley in January, 2019.

### **PROJECTS (see Map #1, page 96 and Volunteer Photos, page 99)**

#### ***November 16-17, 2019 - Altar Valley Highway 284 Boundary Fence Modification***

A highway fence modification project was completed by 23 volunteers in the south end of Altar Valley (see photos, page 99). Four miles of existing highway boundary fence were modified, 2 miles on each side of Highway 284, a few miles north of the BANWR main entrance. Prior to the actual workdays, the Arizona Department of Transportation removed mesquite and brush bordering the fence line for all 4 miles of fence boundaries. Fence modification was in direct proximity to completed or planned grassland restoration by mesquite removal. The project was designed and led by the AGFD's Region V Wildlife Program Supervisor, Karen Klima in collaboration with Rita Rutledge, Chairperson of the Friends of the Buenos Aires. The AAF's operating account paid \$190 for the project's camp food for volunteers.

The NFWF 8-year grant purchased all of the necessary materials for 4 miles of fence at \$3,700. The project added **6,500 acres** of pronghorn habitat connectivity (see Map #1, page 96).

#### ***December, 2013 - BANWR Installation of 5 Water Troughs***

Five water troughs were added at separate locations in key pronghorn/mule deer habitat. The troughs are fed by a solar well and storage tank on the BANWR (see Map #1, page 96).

## **GRASSLANDS (see Map #1, Page 96)**

### ***December, 2019 - Altar Valley South Lagunita Phase 3 Grasslands Restoration at Santa Margarita Ranch***

Utilizing contractors, the owner of the Santa Margarita Ranch completed grubbing of **372 acres** of mature mesquites on the west side of Highway 286 near the BANWR headquarters entrance. The cost of \$50,000 included \$15,000 pronghorn and \$35,000 mule deer HPC funds. The project was in direct proximity to the November, 2019 Highway 284 fence modification project outlined previously, and adjacent to the current population of 25 pronghorn occupying the east side of the highway.

## **FIELD TRIP**

### ***January 31, 2018 - Buenos Aires National Wildlife Refuge-Altar Valley Field Trip to Review Grassland Pronghorn Restoration Project Efforts***

AAF Vice President and Project Manager, Glen Dickens, along with current and past AAF Board members Dave Brown, Tice Supplee, Ken Meadors, Al Sue, Gary Boyer, Joe Bill Pickrell, Connie Taylor and AAF's field and GIS managers John Millican and Rana Tucker attended an all-day field trip to Altar Valley and the BANWR. The field trip was organized by the AGFD's Region V Wildlife Program Supervisor, Karen Klima. In addition to AGFD and AAF representatives, the meeting included four lead employees/biologists from the BANWR, and Kerry Baldwin and Kyle Thompson, both Altar Valley Alliance representatives. The purpose of the field trip was to review areas that need treatment and removal of mesquite, as well as to review areas that had been restored in the past 5-7 years.

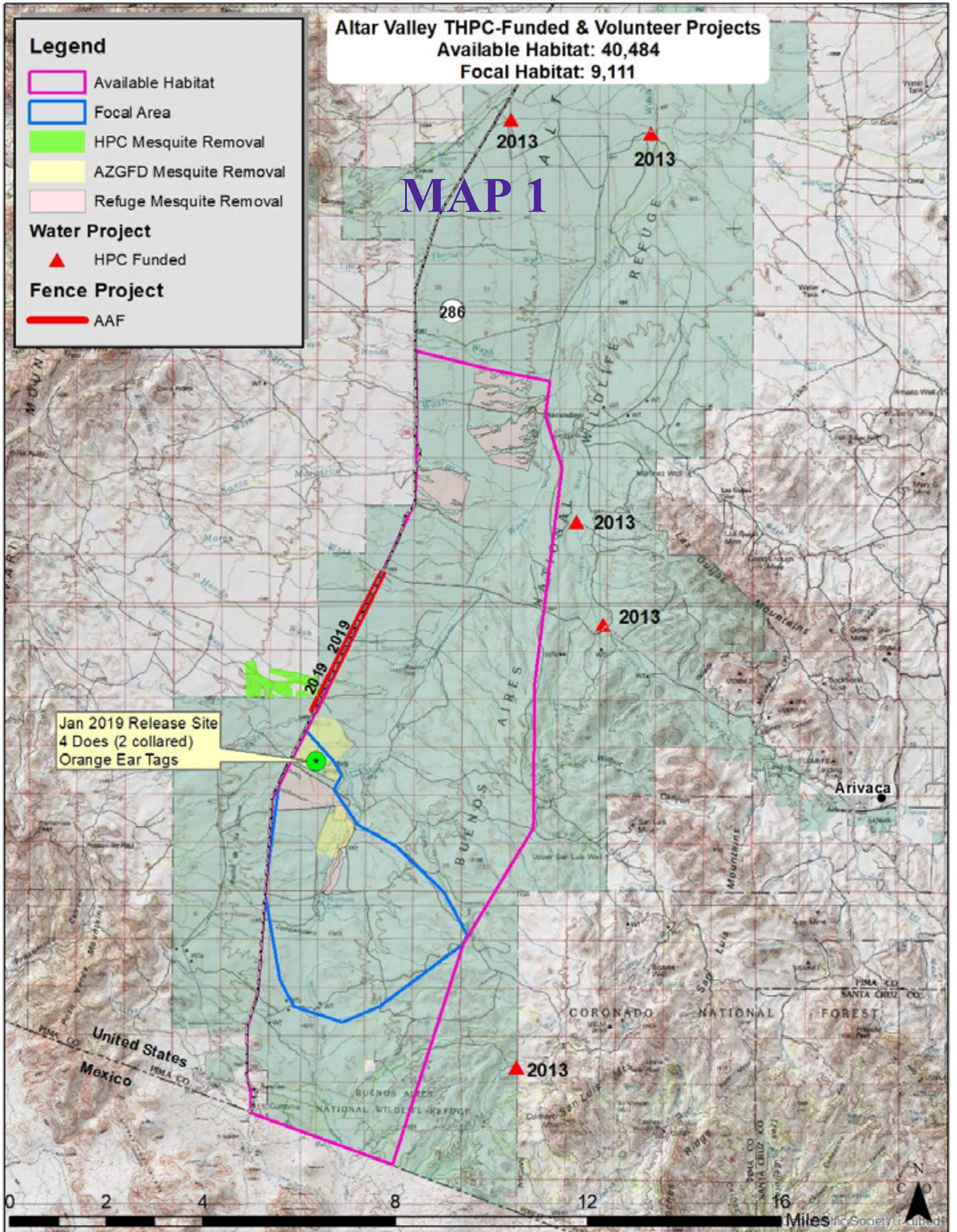
The group also reviewed and discussed the BANWR habitat management history including fire management, mesquite and fence removal, wildlife water development, and current pronghorn population status and distribution. Volunteers have removed over 180 miles of unneeded pasture fence and are planning for more removal in the coming years. Participants agreed that the efforts to restore pronghorn habitat to support a more viable population of pronghorn were worth the present and future efforts that may be required. The current population of pronghorn in this area is estimated to be fewer than 25 animals. Numerous issues will need to be addressed and resolved to provide the opportunity for future pronghorn population supplements.



## **PRONGHORN POPULATION TRANSPLANTS & SURVEYS**

### ***January, 2019 - Four Pronghorn Captured near Prescott Valley, Arizona Released on the Buenos Aires Wildlife Refuge***

Four pronghorn captured near Prescott Valley, Arizona were relocated to the BANWR. The pronghorn included 4 ear-tagged mature does, two of which were radio collared for monitoring seasonal movements and habitat use. The resident pronghorn herd numbered just 15 animals before the supplemental release. Since the 2019 fawning season, the fledgling herd is now estimated to have least 25 individuals (see Map #2, page 97). The 2-radio collared does have explored all of the current occupied pronghorn habitat and have integrated themselves into the remnant population. (see Map #3, page 98).





**Altar Valley Annual Surveys 2009-2015**  
**Available Habitat: 40,484**  
**Focal Habitat: 9,111**

**MAP 2**

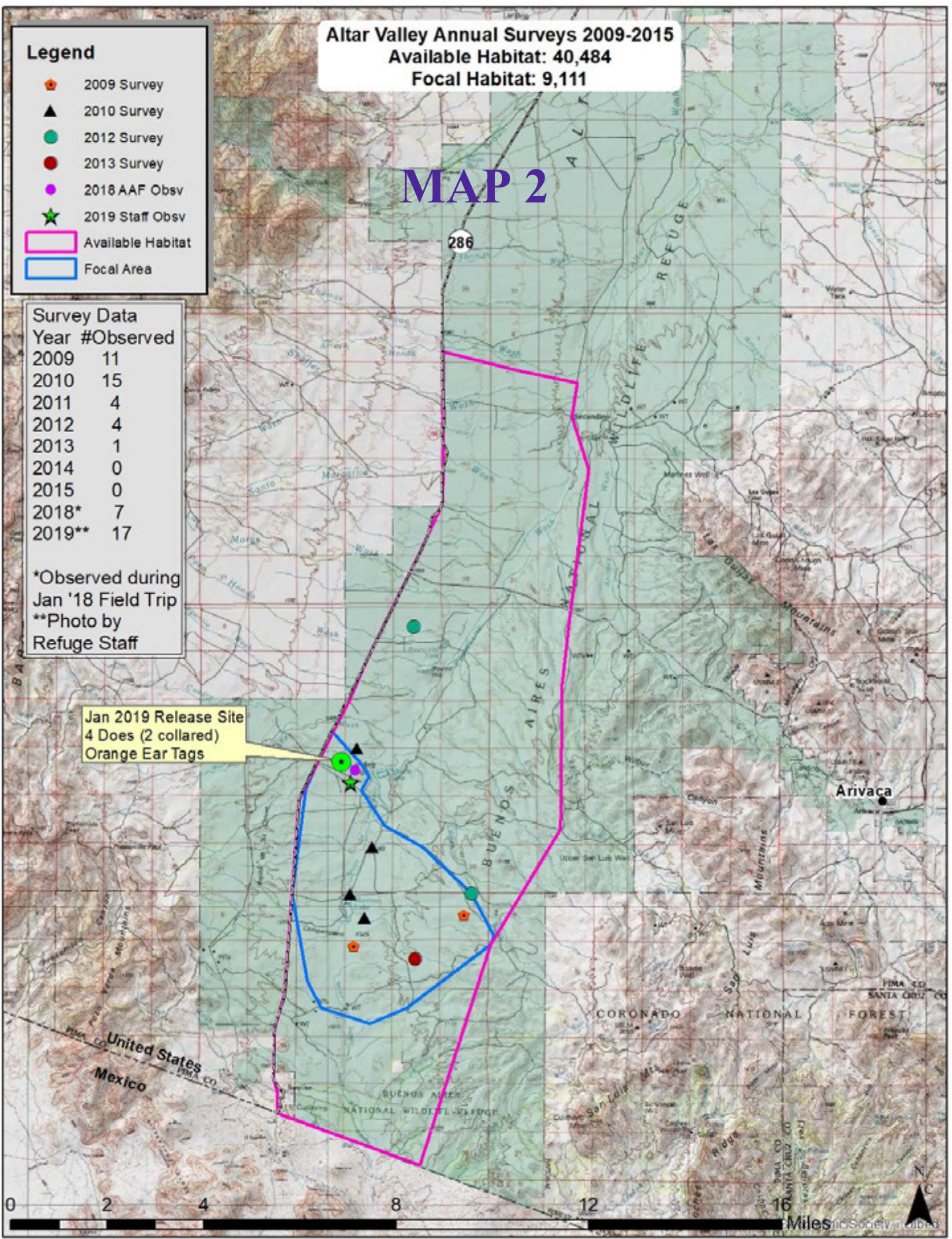
**Legend**

- 🟠 2009 Survey
- ▲ 2010 Survey
- 2012 Survey
- 2013 Survey
- 2018 AAF Obsv
- ★ 2019 Staff Obsv
- 🟡 Available Habitat
- 🟢 Focal Area

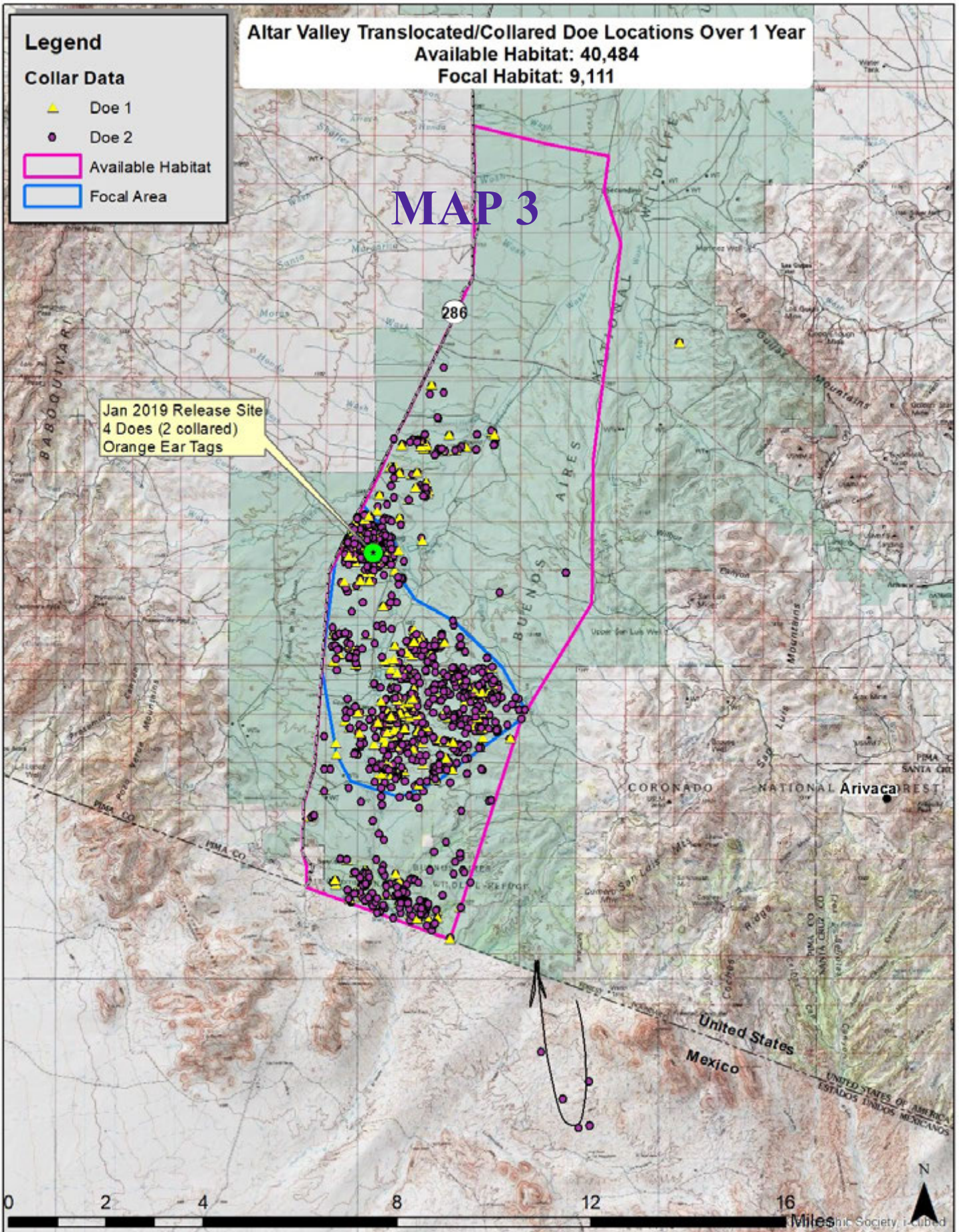
Survey Data	
Year	#Observed
2009	11
2010	15
2011	4
2012	4
2013	1
2014	0
2015	0
2018*	7
2019**	17

\*Observed during Jan '18 Field Trip  
 \*\*Photo by Refuge Staff

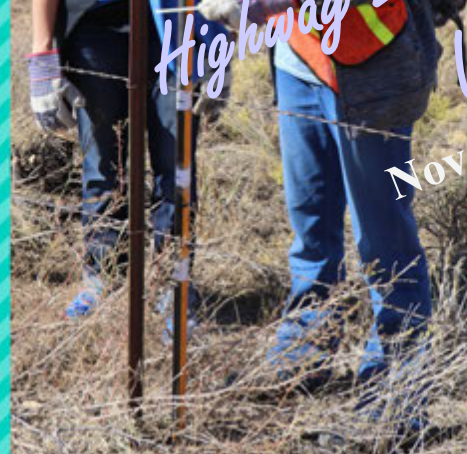
Jan 2019 Release Site  
 4 Does (2 collared)  
 Orange Ear Tags













# ***PASSIONATE AAF VOLUNTEERS***

**Allen Flat Group 9/28/19**



**ALLEN  
FLAT**

**Bonita - Field Tour Attendees 9/23/16**



**BONITA**

**Bonita - Friday Crew 9 /27/19**



**Bonita - Volunteers at the End of**



**the Fence 4/13/19**

**Bonita - Volunteers 4/12/19**



**University of Arizona  
Volunteers 6 /13 /18**



**SONOITA**

**Saturation Survey Team 7/05/19**



**Volunteer Overview 4/14/18**

