

Science on Audubon's Appleton-Whittell Research Ranch

Summary and Status of Research, Monitoring or Baseline Projects – updated 4 2009

Includes: One or more of following: Proposal approved but project not commenced (funding may be pending); Field work/research within past two years; Publication received within past two years; Publications pending; Publications in demand within past two years; Projects with return intervals >1 year; Collaborative efforts.

Investigating the effect of livestock on the physical properties of soil in an arid grassland

Allington, Ginger; Thomas J. Valone; Saint Louis University. St. Louis, Mo 63116

Subject: Collect water infiltration and soil compaction data on grazed and ungrazed land

Application: Evidence of impacts of livestock on physical properties may assist restoration efforts at desertified sites.

Keywords: water infiltration, soil compaction, grassland, grazing, soil, soil physical properties

Future planning for Sonoita Crossroads

Anderson, Kent G., ARR intern; Wm. V. Branan, ARR director

Subject: Develop report integrating public surveys, traffic conditions and development options

Application: Guide future decisions

Survey results for mule deer, javelina and whitetail deer on the Research Ranch

Arizona Game & Fish Department; John Millican, 555 North Greasewood; Tucson, AZ 85745

Key words: large mammals

Project: Estimate populations

Application: Analyze impacts of hunting, climate on populations

Leopard frog surveys

Arizona Game & Fish Dept. (AZGF): Abigail Dinsmore, Wildlife Specialist, (2005) 2221 W. Greenway Road, Phoenix, Arizona 85023 (602) 789-3362, Adinsmore@azgfd.gov.

Subject: Survey leopard frogs, primarily in Post Canyon area

Keywords: Bufo, Scaphiopus, Rana, Chiricahua leopard frogs, Bullfrogs, Canyon treefrogs

Application: Protect native species

Fish Surveys

Arizona Game and Fish Department. Fisheries biologists: Suzanne Ehret, 555 N. Greasewood Rd. Tucson, AZ 85743; 520 388 4453; SEhret@azgfd.gov

Subject: Conduct periodic surveys of the riparian systems of the Research Ranch and neighboring properties *See also Jakle (archives) for earlier correspondence and reports.*

Application: Evaluate stability of populations of native species, recommend management actions

Keywords: Gila topminnows, Gila chub, desert pupfish, longfin dace, crayfish

Pupfish

Arizona Game & Fish Dept. (AZGF): Susanne Ehert (2008), Native Fisheries Specialist I, Region V, 555 N. Greasewood Rd. Tucson, AZ 85743, 520.388.4453, 520.628.5080, SEhret@azgfd.gov. Ross Timmons, AZGF Fish Biologist.

Previous: Jeremy Voetz (2003) Rebecca Davidson (2001), Timmons, Weedman, Brown, Bagley, Hendrickson

Subject: Monitor and protect population of pupfish introduced into ranch stockponds and wildlife waters

Keywords: Pupfish, native fish, threatened and endangered, *Cyprinodon*

Application: Conserve native species

Survey of Gould's Turkeys near Huachuca Mountains

John Millican; Arizona Game & Fish Department; 555 North Greasewood; Tucson, AZ 85745

Key words: wild turkeys

Project: Estimate populations

Application: Track success of re-introduction effort

Avian Monitoring for ARR IBA

Audubon staff: Tice Supplee, Aud AZ Director of Bird Conservation, L Kennedy, AWRR Director.

Project: Establish transects to monitor bird species on ARR

Application: Support IBA nomination (see also Wonkka), examine longterm trends

Bullfrogs, Monitoring and Treatment on the Research Ranch

ARR Staff: L. Kennedy, Director

Subject: Discover and eradicate individuals within boundary of ARR

Application: Protect native fish, reptiles and amphibians from predatory, non-native species

Christmas Bird Count – Research Ranch Circle

ARR staff; Robert Wessler – organizer and compiler; weissler@aves.org

Subject: Conduct bird count as per Audubon standards.

Application: Pooled data yield important information re avian populations, movement and trends.

Depth to groundwater on Audubon Research Ranch

ARR Staff – Volunteers

Project: Monitor the depth to groundwater of the wells on ARR.

Application: This study helps establish a water consumption baseline for the Sonoita Valley.

Ecological Site Monitoring (ESM)

ARR Staff – Linda Kennedy

Project: Establish permanent points to monitor vegetation change. Based on Ecological Site Map (Robinett & Breckenfeld)

Application: Identify trends in vegetation change

Geographic Information System

ARR Staff – See variously: Crawford, Geiger, Loomis, Seltzer

Precipitation at Ecological Sites

ARR Staff – Linda Kennedy

Project: Establish range gages to correspond with ESM. Based on Ecological Site Map (Robinett & Breckenfeld)

Application: Correlate precipitation with changes in vegetation.

Recording Precipitation with Data Loggers

ARR Staff: Linda Kennedy, Christine Hass

Project: Install tipping gages equipped with dataloggers in key areas.

Application: Provide detailed information relevant to stream flows and changes in vegetation

Wild Turkeys at ARR

ARR Staff; Linda Kennedy, Assistant Director

Project: Record sightings of wild turkeys on ARR.

Application: Document spread of sub-species reintroduced in Huachuca Mtns.

MAPS (Mapping Avian Productivity and Survivorship)

ARR Staff: Christine Hass, assistant director

Key words: breeding birds, mark-recapture, mist-netting, productivity, survivorship

Project: MAPS station established under guidelines of continent-wide program to provide critical conservation and management information for populations of landbirds breeding within the United States and Canada. Post Canyon is one of over 500 stations. Birds are mist-netted, recorded, banded and released.

Application: Increases knowledge of landbirds breeding within the US and Canada

Monitoring wildlife in and near the Appleton-Whittell Research Ranch using trail cameras

Hass, C.C. Appleton-Whittell Research Ranch, HC 1 Box 44, Elgin, AZ 85611

Project: Use trail cameras to identify and monitor various species of terrestrial wildlife.

Application: Identify habitat specific wildlife use and develop index for long-term trends.

Agave Monitoring on the Coronado National Forest

Biedenbender, Sharon, Ph.D., USFS. Rangeland Management Specialist, Sierra Vista Ranger District, Coronado National Forest, 5990 S. Highway 92, Hereford, AZ 85615. sbiedenbender@fs.fed.us.

Project: Monitor impacts of livestock grazing on florivory of agave

Application: Management of food source for lesser long-nosed bat

Keywords: *Agave palmeri*, *Agave parryi*, *Leptonycteris curasoae*, cattle, deer

Subdivision versus ranching: Effects of livestock grazing and exurban development on the biodiversity of a southwestern grassland/savanna

Bock, Carl (Carl.Bock@colorado.edu), Dr. Jane Bock (Jane.Bock@colorado.edu); Department of Environmental, Population, and Organismic Biology; University of Colorado; Boulder CO 80309-0334

Subject: What are the impacts of conversion of ranches into housing developments? ARR serves as ungrazed, undeveloped control. Species groups: Flowering plants, grasshoppers, butterflies, birds, rodents.

Application: Guide human population growth to minimize negative impacts on native species.

Response of rodents, birds, and vegetation to the Ryan Fire, Sonoita Valley, AZ -a unique opportunity to examine the ecological consequences of fire in grassland/savannas of the Arizona Borderlands

Bock, Carl, E., Professor; Department of Environmental, Population, and Organismic Biology; University of Colorado; Boulder, CO 80309-0334; (303) 492-7184 (Colorado), (520) 455 0563 (Arizona). Linda J. Kennedy, Assistant Director; Audubon Appleton-Whittell Research Ranch

Subject: Quantify effects of wildfire on assemblages of small mammals, birds and vegetation.

Keywords: wildfire, Mearn's quail, grazing, biodiversity, exotic grasses

Application: Help land managers predict response of species to large scale rangeland fire

Soil inventory update

Breckenfeld, Donald J., Daniel Robinett; U.S.D.A. N.R.C.S. 2000 E. Allen, Tucson, AZ

Project: A soil inventory update that coincides with soil surveys that have been done elsewhere in southern Arizona – updating the old soil survey to the new soil series and map units used in MLRA 41-1.

Application: Baseline information needed by other research projects.

Now available at http://www.audubonresearchranch.org/Research_Characteristics_SoilRangeResourceInventory.html

Wildland Philanthropy: An American Tradition (working title)

Butler, Tom, Researcher/Writer/ Woodshed Communications, 835 Economou Road, Huntington VT 05462; Antonio Vizcaino, Photographer

Project: Book on natural areas conserved wholly or partly by private funding and initiative. Profile of Appleton-Whittell Research Ranch included.

Application: Promote wildland philanthropy

Keywords: Appleton, conservation, natural areas

Comparison and impacts of Bronzed and Brown-headed Cowbird parasitism in southeastern Arizona

Chace, Jameson F. and Dr. Alexander Cruz; Department of Environmental, Population, and Organismic Biology; University of Colorado; Boulder, CO 80309-0334

Keywords: nest predation; grasslands; brood parasites;

Project: Study the impact of cowbird parasitism on songbird communities in southeastern Arizona, a region of high biological diversity and thus of concern for the preservation of faunal communities

Application: Help wildlife managers evaluate whether control of brood parasites is necessary to protect other species

Population dynamics and habitat characteristics of Montezuma (Mearn's) Quail in southeastern Arizona

Chavarria, Pedro Mazier; Texas A & M University, 319 Sonoita Ave. P.O. Box 602, Patagonia AZ 85624. and Louis Harveston, Ph.D., Sul Ross State University, Department of Natural Resources, P.O. Box C-16, Alpine, TX. 79832.

Subject: Monitoring movement of quail.

Application: Fill knowledge gaps about life history and determine how behavior and genetic viability is affected in areas where hunting is, and is not, allowed.

A History of the Lands in the National Audubon Society's Research Ranch Near Elgin, in Santa Cruz County, Arizona

Collins, Glendon E. , Bureau of Land Management (retired), Arizona State Trust Lands (retired). Phoenix.

Subject: Compile and document history of land transactions involving federal and state lands.

Application: Background information

Boer Lovegrass on the Research Ranch: Update 2008

Crawford, David. ARR Educational Internship. University of Iowa, Iowa City IA.

Subject: Use GPS and GIS to map locations of Boer Lovegrass (*Eragrostis curvula* var. *conferta*) on the Research Ranch

Application: Compare with previous work to assess trends. Provide time specific information re spread.

Using soil moisture to assess ecosystem function following exotic lovegrass invasion in semiarid grasslands of southeastern Arizona

Cross Anne F., Ph.D.; 3740 E. 83rd St. Tulsa OK 74137; [Alexander G. Fernald](mailto:Alexander.G.Fernald@nmsu.edu), Ph.D., 4637 Maxim Port, Las Cruces, NM 88011, fernald@nmsu.edu

Project: Measure soil moisture under Plains lovegrass (*Eragrostis intermedia*), a native species, and Lehmann lovegrass (*E. lehmanniana*), an exotic species.

Application: Determine whether a semiarid grassland retains its functional integrity following the invasion of an introduced, exotic grass.

Current Distribution and Status of Slevin's Bunchgrass Lizard, *Sceloporus slevini*, in southeastern Arizona

d'Orgeix, Christian, Ph.D.; Department of Biology; P.O. Box 9064; Virginia State University; Petersburg, VA 23806; phone: (804) 524-5023 fax: (804) 524-5732; e-mail: cdorgeix@vsu.edu. 2006: also Nakiesha D. Bridgers, Department of Biology, Virginia State University

Project: Survey for bunchgrass lizard. Collect tissue for DNA analysis (tip of tail – no take) to compare intrapopulation and interpopulation genetic variance.

Application: foundation for determining genetic relatedness of different populations and effects of bottlenecks on populations

Survey of Appleton-Whittell Research Ranch Drainages and Ponds for the Mexican Garter Snake

d'Orgeix, Christian, Ph.D.; Department of Biology; P.O. Box 9064; Virginia State University; Petersburg, VA 23806; phone: (804) 524-5023 fax: (804) 524-5732; e-mail: cdorgeix@vsu.edu
Project: Survey for presence of Mexican garter snakes on ARR (Telles tank, O'Donnell Canyon, Post Canyon), and conduct long-term study of population at Finley tank. Pledges to be very careful about causing any disturbance to water sources and vegetation. Not killing, collecting or removing any snakes.
Application: Management implications for species of special concern (AZGF)

Annotated bibliography of selected reports, publications and theses

Dyson Ruth E.; 2647 Lamb Road, Mason, Mi. 48854
Project: Prepare annotated list/bibliography of publications of particular interest to ARR.
Application: Facilitate information exchange and document publications

Microsatellite DNA survey of desert pupfish

Echelle, Anthony A., Oklahoma State University, Zoology Department, Stillwater, OK 74078. 405 744
9681.echelle@okstate.edu. Field leader: Jeremy Voeltz, Arizona Game & Fish Dept. jvoeltz@gf.state.az.us
Project: Assess genetic status of desert pupfish refugium populations and develop management protocols for exchange of genetic material among populations.
Application: A conservation genetics protocol will be developed for long-term maintenance of desert pupfish populations.

Finding effective strategies for adding native diversity into heavily invaded grasslands

Fehmi, J.S., Ph.D., 530 621 7268. jfehmi@email.arizona.edu; U of A; SNR, Tucson
Project: RE-introduce native plants into areas dominated by naturalized, non-native plants
Application: Increase proportion of palatable native plants

Survey of high desert grasslands Hymenoptera

Grissell, Eric, PO box 739, 38 Terry Lane, Sonoita, AZ; egrissell@dtgllc.com
Project: Study insect diversity in southwest
Application: Significant contribution to state of knowledge
Filename: Grissell insects 2008
Status: *Two Malaise traps set up in Post Canyon. Checking every 10 days.*

Ecology of hooded skunks in southeastern Arizona

Hass Christine C., Ph.D., Appleton-Whittell Research Ranch
H. Sheridan Stone, USAIC & Fort Huachuca, Environmental and Natural Resources Division, ATZS-ISB (Wildlife), Fort Huachuca, AZ 85613-6000
Keywords: hooded skunks, *Mephitis macroura*, striped skunks, *M. mephitis*, density, space use, rabies
Project: Examine resource partitioning of hooded and striped skunks; to determine densities of skunks at four sites in southeastern Arizona, to review the current and historical distribution of hooded skunks from published and unpublished reports and museum collections; to examine the prevalence of rabies antibodies among live-trapped skunks and other carnivores, and determine the variants of rabies virus among sick animals and fresh mortalities.
Application: Examine epidemiology of rabies in SE Arizona

Introduction of Species Diversity into Boer Lovegrass Monocultures

Hershdorfer, Mary and Ramona Gardner, Ph.D., USDA-NRCS Plant Materials Center. Tucson 520 292 2999.
Project: Determine effectiveness of various methods to increase native biodiversity into monoculture created by non-native lovegrass.
Application: Protect native grasslands

Meteorological Station

Keefer Tim, Hydrologist, USDA-ARS; Southwest Watershed Research Center; Tucson, AZ 85711; 520 670 6380x 158; tkeef@Tucson.ars.ag.gov
Project: Station jointly owned by ARR & USDA
Application: Baseline information on climate available to researchers and land managers of region

Arbuscular mycorrhizal fungi associated with big sacaton (*Sporobolus wrightii*)

Kennedy Linda J., Audubon Appleton-Whittell Research Ranch; Jean C. Stutz, Ph.D., Arizona State University, Department of Plant Biology, Box 871601, Tempe AZ 85287; 480 965 5563; jstutz@asu.edu
Key words: ecology, species richness, symbiotic relationship
Project: Examine the role of AMF in the life history of big sacaton.
Application: Aid revegetation and restoration of sacaton grasslands

Photo-herbarium for the Audubon Research Ranch

Kennedy Linda, Ph.D., Assistant Director, ARR
Project: Document life stages of plant species found on the Research Ranch.
Application: Baseline information for future research; Aids identification.

Sacaton Rehabilitation

Kennedy Linda, Ph.D., Assistant Director, ARR

Project: Re-establish *Sporobolus wrightii* in appropriate degraded sites.

Application: Improve wildlife habitat, bioremediation of sites dominated by exotic, invasive Bermudagrass.

Multi-scale invasive plant inventory, monitoring and prediction protocols for TER-S management support

Lehnhoff, Erik A., Ph.D. Montana State University, 333 Leon Johnson Hall, Bozeman, Montana, 59717.

Project: Improve understanding of non-native invasive plants on Fort Huachuca.

Application: Generate methodology to predict future distributions of non-native, invasive plant species on Fort Huachuca and surrounding lands.

Keywords: Lehmann lovegrass, *Eragrostis lehmanniana*

Filename: Lehnhoff invasives 2009

Status: Preproposal accepted, proposal to DOD submitted.

DOE – Ameriflux QA/QC Site Comparison

Loescher, Hank. Oregon State University, 321 Richardson Hall, Corvallis, OR 94331

Project: To enhance the quality of data and assurance of site instrumentation (NOAA). Provide national standard toward existing measurements.

Application: Indirectly through long term monitoring of climate & abiotic variables that may affect future populations

Keywords: Ameriflux, carbon, energy exchange, climate

Flora of the Appleton-Whittell Research Ranch

McLaughlin Steven P., Ph.D., Office of Arid Lands Studies, University of Arizona, Tucson AZ 85721; 520 741 1691;

spmcl@ag.arizona.edu; Erika L. Geiger; School of Renewable Natural Resources, University of Arizona, Tucson AZ 85721; 520 621 7255; elg@u.arizona.edu; Janice E. Bowers; U.S. Geological Survey, 1675 W. Anklam Road,

Tucson AZ 85745

Key words: flora, floristic elements, grasslands, vascular plants

Project: Compile a flora –a complete list of all flowering plants, ferns, and conifers on the Research Ranch.

Application: Baseline for ongoing and future research

Seed banks of sites dominated by native and non-native plants

McLaughlin Dr. Steven; Office of Arid Lands Studies; University of Arizona; Bioresources Research Facility, 250 East Valencia Road; Tucson, AZ 85706; Janice Bowers, U.S. Geological Survey; Research Project Office; 1675 W.

Aklam, Tucson AZ 85745

Subject: Comparison of the seed banks of sites dominated by natives vs sites dominated by non-native, invasive lovegrasses: *Eragrostis lehmanniana* and *E curvula* var. *conferta* (*E. chloromelas*).

Application: Land management – information necessary for successful restoration of native species

Water use and the future of the Sonoita Valley

Naeser Robert and Anne St. John, Yale School of Forestry and Environmental Studies, New Haven, CT.; Wm. V. Branan, Ph.D., Director, Audubon Research Ranch

Keywords: water budget, zoning regulation, groundwater recharge capacity, safe yield density

Project: Review existing information to determine how much water is currently being used in the Sonoita valley

Application: Establish safe yield development density that will keep the area from growing beyond the capacity of the water supply.

Natural Resources Inventory – Primary Site Unit

Natural Resources Conservation Service – USDA. Tucson, AZ. Emilio Carrillo (2004), Christine Egen (1992), Steve Barker (1982)

Project: Repeated measures: vegetation and soil. Transects established in 1982, to be resampled on approximately decadal basis.

Application: Identification of trends – reference area for MLRa-41

Long-term meteorological, evaporation and carbon flux measurements

National Oceanic & Atmospheric Administration (NOAA); Tilden P. Meyers, Ph.D. Meteorologist; NOAA, Oceanic and Atmospheric Research, Air resources Laboratory, Atmospheric Turbulence and Diffusion Division, 456 S. Illinois Ave., P. O. Box 2456; Oak Ridge, Tn 37831-2456 meyers@atdd.noaa.gov, 865 576 1245, F 1327; John Hughes, NOAA, National Data Climatic Center, U.S. Climate Reference Network, 151 Patton Avenue Federal Building Room 420-F, Asheville, NC 28801-5001; Ph 828 271 4020; John.P.Hughes@noaa.gov

Subject: “Establish a Climate Reference Network site – to characterize the water and carbon balance for typical ecosystem for arid southwest grasslands.

Application: These data will be used to improve the current land use models for climate change.” Data available at: <http://gewex.atdd.noaa.gov/> and <http://www.ncdc.noaa.gov/oa/climate/uscrn>

The Effects of Fire and Grazing on Grassland Bird Diversity and Abundance in an Arizona Oak-Savanna

Nichols, Clay. Eastern New Mexico University, Portales, New Mexico 88130. Clay.nichols@enmu.edu

Project: Re-survey bird diversity on oak transects established by Bock & Bishop after Ryan fire.
Application: Provide information, long-term, on effect of wildfire on avian diversity and abundance

Pre-monsoon post-fire sediment survey

Nichols Mary, Hydraulic Engineer, USDA-ARS; 2000 E. Allen Rd. Tucson, AZ 85719; 520 670 6381 x 161;
mnichols@tucson.ars.ag.gov
Subject: Survey several stock tanks on ARR to determine level of sediment movement after monsoon. Ground cover lost due to Ryan Wildfire.
Application: Predict one factor in rangeland health post fires.

Impacts of grazing, fire and precipitation variability on woody plant cover in Chihuahuan Desert grasslands, USA

O'Neal, Kelley. Department of Geography, University of Maryland, 2181 LeFrak Hall, College Park, MD 20742.
kelleyo@umd.edu
Project: Quantify changes in woody plant cover, map occurrence of grazing, fire and precipitation using (in part) Landsat and MODIS satellite data
Application: Identify trends, develop methodology

Spatial distribution of seeds in grasslands of different quality and their potential tolerance to prescribed burning

Ortiz-Barney Elena, Arizona State University, Department of Plant Biology, Box 871601, Tempe, AZ 85287-1601; 480 965 3167; elenaaz@asu.edu; Julie C. Stromberg, Arizona State University, Department of Plant Biology, Box 871601, Tempe, AZ 85287-1601
Keywords: weed bank, restoration, fire, management
Project: Determine the effect of grassland degradation have on soil seed bank reserves and discover where the majority of seeds are found within the landscape.
Application: Rehabilitation and restoration of grasslands

Inventory of ecological sites, their present day condition, trend and rangeland health

Robinett Dan (Daniel.robinett@az.usda.gov), Don Breckenfeld, U.S.D.A. –N.R.C.S. 2000 E. Allen, Tucson, AZ
Project: Mapped the ecological sites on ARR and compared present day plant communities to what our site guides show as potential for MLRA 41.
Application: Baseline information for future research and land management. Control area for comparison by ranch managers.
Website: http://www.audubonresearchranch.org/Research_Characteristics_SoilRangeResourceInventory.html

Babocomari River and Tributaries – Monitoring conditions along streamside, cienega and sacaton

Robinett, Daniel G., Robinett Rangeland Resources, Catalina, AZ; Donna Mathews, Coronado RD & D., Inc. Willcox, AZ.
Project: Establish transects and monitor streamside conditions of Babocomari River, O'Donnell and Turkey Creek for 5 years .
Application: Results will enable sound management decisions to maintain and/or improve vegetation conditions on Babocomari watershed. Will have application to other desert rivers.

Effects of the Ryan Wildfire (April 2002) on Wintering Grassland Birds in the Sonoita Valley, Arizona

Ruth, Janet M. Ph.D., USGS Arid Lands Field Station, Fort Collins Science Center, Department of Biology, University of New Mexico, Albuquerque, NM 87131, Phone: 505-346-2870 Ext. 14, Fax: 505-277-0304, email: janet_ruth@usgs.gov
Project: Compare pre-fire data collected on the Audubon Appleton-Whittell Research Ranch in 1999-2001 with post-fire data collected on the same transects and plots.
Application: Evaluate the effect of wild fire on wintering avian abundance/densities and vegetation structure/composition in desert grassland habitats.

Wintering habitat use by priority grassland birds

Ruth, Janet M. Ph.D., Research Ecologist, USGS Fort Collins Science Center, Arid Lands Field Station, Department of Biology, University of New Mexico, Albuquerque, NM 87131; 505-346-2870 or 2872 Ext. 14; 505-277-0304 FAX; janet_ruth@usgs.gov
Keywords: wintering grassland birds; habitat use; effects of grazing, Baird's sparrow, Grasshopper sparrow, Cassin's sparrow, McCown's longspur, vegetative structure and composition
Project: How do high priority grassland birds use habitats during the winter season? How is winter habitat use affected by land use practices such as grazing?
Application: Aid in land management decisions to provide habitat.

Distribution and abundance of breeding Arizona Grasshopper Sparrow (*Ammodramus savannarum ammoregus*), and associated priority grassland species, throughout its known range in the Southwest U.S.

Ruth, Janet M. Ph.D., Research Ecologist, USGS Fort Collins Science Center, Arid Lands Field Station, Department of Biology, University of New Mexico, Albuquerque, NM 87131; 505-346-2870 or 2872 Ext. 14; 505-277-0304 FAX; janet_ruth@usgs.gov
Keywords: Grasshopper sparrow, *Ammodramus savannarum ammoregus*, grassland sparrows, breeding populations
Project: Document current distribution and abundance of Arizona Grasshopper Sparrows and associated priority grassland bird species. Test methodologies.

Application: Understanding status and distribution, population trends, ecology and habitat relationships is essential for conservation of avian species of concern.

Mapping of Boer lovegrass, Lehmann lovegrass, and coastal Bermuda on the Research Ranch

Seltzer Stephanie, Intern ARR; John Briggs, Ph.D., Department of Plant Biology, Arizona State University, Box 871601, Tempe, AZ 85287-1601; john.briggs@asu.edu; Linda Kennedy, Ph.D. Assistant Director – ARR

Key words: non-native, grasses, mapping, GPS, GIS

Project: Quantify the extent to which non-native grass species have established on ARR

Application: Land management decisions and baseline for future research.

Assessing Condition of O'Donnell Creek

Simms, Jeffrey, BLM Fish Biologist, Tucson Field Office, Nate Dietrich, BLM Hydrologist.

Project: Use Proper Functioning Condition Standards to evaluate the condition of a portion of O'Donnell Creek

Application: Environmental Assessment

The herpetofauna of the Research Ranch

Smith Hobart, Ph.D., University of Colorado, Department of Biology, Boulder, CO 80309; hsmith@spot.colorado.edu; David

Chiszar, Ph.D., University of Colorado, Department of Psychology, Boulder, CO 80309;

chiszar@psych.colorado.edu

Key words: Herpetofauna, Research Ranch

Project: Develop a checklist of reptiles and amphibians known or thought to occur on the Research Ranch.

Application: Baseline information

Quantifying runoff and erosion after the Ryan Fire at The Research Ranch, southeastern Arizona

Stone Jeffrey, (jstone@tucson.ars.ag.gov) and Ginger Paige, Research Hydrologist (520 670 6381 x 143;

gpaige@tucson.ars.ag.gov), USDA-ARS; 2000 E. Allen Rd. Tucson, AZ 85719; 520 670 6381

Subject: To develop a methodology which will provide framework for future experiments

Application: Predict the effects of management on the amount of runoff and erosion from ecological sites within MLRA 41-3.

Habitat, movements and roost characteristics of Montezuma quail in southeastern Arizona

Stromberg Mark R., Ph.D., Director, Hastings Reserve, UC Berkeley, 38601 E. Carmel Valley Road, Carmel Valley, CA

93924; Stromber@socrates.berkeley.edu; 831 659 2664

Key words: *Cyrtonyx montezuma*, quail, ecology

Project: Understanding the status of populations and habitats of this species

Application: to facilitate management decisions.

Ecology of *Sporobolus wrightii* (Big sacaton): Implications for restoration and management of riparian grasslands in southwestern North America

Tiller Ronald L. (rtiller@ucdavis.edu), 1308 Alice St., Davis, CA 95616, Brantlee Spakes, Juliet C. Stromberg, Jean C. Stutz,

Duncan T. Patton; Department of Plant Biology, Arizona State University, Box 871601, Tempe, AZ 85287-1601;

Linda Kennedy, AAWRR

Keywords: *Sporobolus wrightii*, big sacaton, riparian grassland, mycorrhizae, revegetation

Project: Understand the ecological processes, variables and relationships influencing regeneration and maintenance of sacaton grasslands.

Application: Enhance restoration/revegetation/protection of sacaton grasslands

Research and reintroduction effort for Huachuca Water Umbel

Titus Jonathan H., Ph.D., Dept. of Biology, Jewett Hall, SUNY-Fredonia, Fredonia, NY 14063 716-673-3818

titus@fredonia.edu; Priscilla Titus, Fredonia NY 14063

Key words: *Lillaeopsis schaffneriana* ssp. *recurva*, listed species, recovery plan

Start: 2003

Project: Transplant plugs and monitor success

Application: Protect listed species, aid in development of recovery plan for species

Restoration of Bolson Tortoises in the Southwestern United States: A Plan for Conservation and Education

Joe Truett * & Mike Phillips, Turner Endangered Species Fund; P. O. Box 211, Glenwood, NM 88039; Steve Dobrott,

Manager, Ladder Ranch, NM; Tom Waddell, Manager, Armendaris Ranch, NM; *primary contact: jtruett@gilanet.com;

505 539 2188

Key Words: *Gopherus flavomarginatus*; monitoring

Subject: Monitor, by observation of animals and sign, the behavior, feeding habits, breeding, egg-laying, and burrow use of bolson tortoises in enclosures on the Appleton Ranch property adjacent to the Research Ranch.

Application: Design a strategy for translocating some of the tortoises to the Turner-owned Ladder Ranch

Photo documentation post Ryan Wildfire

Webster, Molly, P. O. Box 1234, Patagonia AZ 85624; 520 394 2705; mollyweb@dakotacom.net

Keywords: fire, East mesa, Post canyon

Project: Document changes in vegetation after the Ryan Wildfire of April 30, 2002.

Application: Future land management decisions; Baseline for research

Inventory of Native Plant-Feeding Insects Arizona

Wheeler, Alfred G., Department of Entomology, Clemson University, Clemson, SC 29634-0365; 864-656-5061;
awhlr@clemson.edu

Keywords: weeping lovegrass, Lehmann lovegrass, Boer lovegrass, plains lovegrass, phytophagous insects, biodiversity

Project: Collect insects that feed on *Eragrostis* spp. and other plants to identify species, and compare species composition with collections from NM, OK and TX.

Application: Baseline information on species occurrence and host plants

Floral biology of *Penstemon dasyphyllus* and other *Penstemon* species on ARR.

Wilson, Paul. Department of Biology, California State University, Northridge, CA 91330-8303. 818 677 2937

Project: Study the diversity of *Penstemon* flowers in terms of morphology, pollinators, nectar secretion characters, and pollen presentation characters.

Application: May aid in conservation of *Penstemon* species that are of conservation concern
