CALIFORNIA PIKA SUMMIT

FIRST ANNUAL MEETING OF THE CALIFORNIA PIKA CONSORTIUM

United States Forest Service-Sierra Nevada Research Center
Davis, California
November 10, 2009

Hosted by:
US Forest Service – Pacific Southwest Research Station
California Department of Fish and Game

SUMMARY REPORT

Prepared by:
Deana Clifford (DFG)
Randi Logsdon (DFG)
Connie Millar (USFS)
Toni Lyn Morelli (USFS)
Scott Osborn (DFG)

November 24, 2009

Contents

Executive Summary

Pikas (*Ochotona*) are small mammals related to rabbits that are found in mid to high elevations across the Northern Hemisphere. Specialized physiological and behavioral adaptations that enable pikas to tolerate cold environments also render them highly sensitive to warm temperatures. Vulnerability to warming coupled with relatively smaller land area available at higher elevations has raised concern for persistence of pikas and other montane small mammals in the face of climate change.

The American pika (*Ochotona princeps*) inhabits rocky mountain slopes of western North America. Limited information exists about climatic relationships of American pikas or other high-elevation mammals. The California Fish and Game Commission and the U.S. Fish and Wildlife Service have both been petitioned to list the pika as threatened or endangered throughout its range in California and across the U.S., respectively. Uncertainty regarding the current status of the species has prompted renewed efforts to monitor the occurrence of pikas in its historic range, to study the relationship between ambient temperature and pika activity, and to develop conservation strategies for pikas.

The California Department of Fish and Game (CDFG) is the trustee agency for conserving and managing California's wildlife. The USDA-Forest Service (USFS) is responsible for managing wildlife on National Forest System lands. Together, CDFG and USFS organized a one-day "California Pika Summit" held in Davis, California on November 10, 2009 to share current information on pikas in California and to develop a coordinated approach to future work on the species. Thirty-one participants from 18 organizations representing agencies, academia and NGOs attended the meeting. The overall goals and objectives for the meeting are presented below.

Goals

- Share information among research scientists and agency biologists working on pika.
- Foster collaborations to increase the efficiency, effectiveness and policy impact of future research, monitoring, and conservation work on pikas.
- Emphasize California pika conservation, but draw on and provide information to other areas in the pika's geographic range as appropriate.

Objectives

- Provide updates on recent projects and plans for future work.
- Outline and prioritize information and research needs; identify potential funding sources.
- Review and update a map of pika sites in California; develop an approach for tracking occurrence information.
- Discuss the role of citizen-based monitoring; establish standardized data collection.
- Present and review first-generation ecological niche models for pika.
- Discuss pika health and handling protocols (anesthesia vs. no anesthesia; biological sample collection for cooperative studies; health threats).
- Discuss listing petitions and status review(s).
- Identify possible conservation strategies.
- Coordinate future studies.

The meeting was organized and facilitated by a small steering committee (S. Osborn, C. Millar, T. L. Morelli, D. Clifford, D. Steele). The morning session was devoted to short presentations highlighting

current pika research and conservation efforts, while the afternoon session consisted of facilitated discussions to develop research, monitoring and conservation priorities; plan future directions for work; and solicit feedback from participants. Throughout the meeting the theme of using the best-available science to guide research, conservation, and management was emphasized, and meeting products were developed in the spirit of increasing collaboration for future pika research and conservation efforts.

Products from this meeting included a prioritized list of research, monitoring, and conservation activities; an initial rough-scale geographic map showing locations of current pika projects in California; and the formation of an interdisciplinary collaborative California Pika Consortium (CPC) to foster research, monitoring, education, conservation and adaptive planning for pikas and other high-elevation species.

The CPC is dedicated to the following goals:

- Sharing information among research scientists, agency biologists, and non-governmental organizations working on American pika and other high-elevation species in California, and coordinating with similar efforts in other regions and on other Ochotona species

- Fostering collaborations that provide best available science to management and policy applications and that increase the efficiency, effectiveness, and policy impact of future research, monitoring, and conservation efforts on American pikas

The focus of the CPC is on California pika research and conservation, but the consortium will draw on and provide information to groups working in other areas of the American pika's geographic range. Efforts of the California Pika Consortium are the responsibility of the CPCC (California Pika Consortium committee) and the consortium work groups, which are comprised of volunteers with specific expertise and interest areas. Initial work groups formed are: Health, Conservation, Database Coordination, Education and Outreach, Geomorphology and Habitat Mapping, Protocols, Regional Coordination, and Research Coordination.

As the CPC looks to the future, next steps will include forming the work groups, determining work group leadership, and moving the work groups forward into their first tasks. A website is being developed to house CPC products and information, a mailing list is being established, and regional connections are being fostered to increase efficiency and avoid redundant activities. The steering committee is grateful for all the great participation that happened during the First California Pika Summit and the enthusiasm that led to the creation of the CPC.

Notes from Presentations

*Slides from most presentations have been made available to meeting attendees, and speaker contact information is included in the participants list (Appendix B).

1) David Hafner and Andrew Smith – Revision of Pika Subspecies

MtDNA throughout the range
New taxonomy: 5 subspecies
New morphometric analysis: Dialects and relationship with anatomy

Additional geographic variation within 5 groups? Still open

2) John Perrine – Documenting and resurveying the historic pika locations in Grinnell's Lassen Transect

Lassen Region (Grinnell map)
Historic locations (Grinnell resurvey): 4 areas (map on slide)
Lassen Park, Mineral, Eagle Lake, Madeline Plains
Habitats: conifers to sage
19 distinct sites: 17 resurveyed
Methods: Rapid assessment observation
Data: occupied, abandoned, no sign
10 of 17 sites currently occupied, 6 abandoned, 1 no sign
Plotted longitude and elevation
Ancillary sites (n=45):
No evidence of pika in Mineral (west) or far east, Madeline Plains
Eagle Lake, Lassen Park: mixed
How has climate changed since Grinnell at Lassen?
Temperature (no increase) and precipitation (increase)

3) David Wright – Revisiting historic pika locales in the northern Sierra

Not many documented locales or trend studies
Status unclear
Are pikas still present? Patterns of persistence vs. elevation/temp, distribution
Historic records (field notes), surveyed historic sites
About 23 historic sites from Alpine to Plumas: 7-8 revisited
Pika found at 5 of 6 sites (none at Eagle Falls-middle of elevation range)
Collecting/archiving scat for DNA tests

4) Lyle Nichols – The pellet's tale: Dating Bodie Hills pika extinctions using fecal pellets

2/3 Bodie populations extinct
Surrounding areas around Bodie
Collected known-age samples: qualitative characteristics
Shrinking as they get old-predictable: measured diameters of over 2,000 pellets
Dated pellet samples in area's pikas thought to historically or currently occur
2 sites' pikas extant (New York Hill, Bodie SHP)
Relationships of extinctions/occupations with climate in 5-year blocks
Strong relationship between extinctions and cold nights/days warm, doesn't correlate well with snow pack
Other factors affecting diameter: body size versus pellet size, diet, dry climate
Discussion: likely not transferrable to other areas due to difference in body size (pellet size) and also climate (weathering)

5) Andrew Smith (presented by Connie Millar) – Pikas in a warm environment: Lessons from investigations at Bodie

40-year study: time series analysis
Metapopulation biology – good study site
Varying pattern of extinctions and colonizations

Patch occupancy over time: 40% occupancy
    Southern patches: collapsed in 1989, 1991 (site structures different, micro-aspects)
    Northern patches: 70-84% occupancy
Pikas are adaptive – adjust behavior in response to ambient temperatures
Anthropogenic refugia
No alpine meadows (sagebrush steppe)
Temperature sensitivity: Lethal temperature experiment misunderstood
Diurnal range of temperatures to compare responses: Pikas continue to be successful
Climate models do not include microhabitat temperatures
Behaviorally thermoregulate; but foraging time may be reduced
Thermal properties of microclimates

6) Chris Ray– A low-elevation haven: Exploring the distribution of pikas within Lava Beds National Monument

Low elevation, high temperature
Abundance and distribution
Stratified random sample of locations surveyed – 80 sites, 2005-2006
    Abundance of pika signs at majority of sites (around 80%)
    Seasonal variation, peak around June
    Indirect vs. direct sign: relationship with search time
    Site: about 12 m diameter
    Cave sites vs. flow sites: Occur more in flow sites
    Variation in density
    Factors: Variation in scat sign disappearance
Microsite temperature data collected
    Pikas using sites experiencing more extremely hot days, not using sites with higher frequency of cold days (sample size is small, error lines may overlap)
Vegetation surveys plotted with pika occurrence; foraging predictors of pika occurrence stronger than other factors (eg, geologic, etc.)
Microhabitats/thermal regimes not characterized well in flow sites (depth of crevices)

7) Rob Klinger – Rangewide and regional density and occupancy patterns of pika and other alpine mammals in the Sierra Nevada and White Mountain ranges

Focusing on multiple species as denizens
Process-oriented view: 7-10 year study, 5 alpine spp, multi-scale (spatial)
Data to model resource selection, spp distributions, population dynamics: persistence over time, factors: climate, topography, vegetation
Plant-animal interactions: Mammals "managing their habitat"
    E.g., shift from herbivore-dominated to granivore-dominated
Analyzing changes: Land cover classes, habitat sampling, exclosure experiments to develop niche models and projected meadow conversion models
Survey transects: Sierra Nevada & White Mts. Stations, N=90

8) Jim Patton – Pika and the Grinnell Resurvey Project

Re-survey of Grinnell sites: 2003 – ongoing
Yosemite Data: 1915-1916

"sites" – camp sites, trail systems, localities specimens collected, or observation: 9 of 41 had pika (7800 to 10.5 feet elev) + 10 additional localities at the same elevational range with pika, unknown # localities where pikas were observed, some detected by calls or sign only

Resurvey: 2003-2008

Pikas found 8 of 9 "sites", + 20 additional sites – same elevational range

Some high-elevation species shifted to higher elevations

Low elevation habitats; unknown if they still occur

Using historical and current data to model future projections: No projected change seen for pika

9) Ed West – Can Pikas Adapt to Climate Change? A 30-year perspective

Climate change: altithermal habitat shift and adaptive capacity

1974-1980: Bodie, Saddleback Lake (alpine, subalpine): habitat adaptation

Microclimate analysis

Behavior data above/below talus compared by habitat

Correlated with temperature and absorbed radiation

Developed energy-exchange model per habitat

Temperature profiles 30 years ago compared with today

Meadow: exceeding Tmax in all habitats

Bodie: Delayed cooling: with season, not cooling as rapidly as it did 30 years ago.

Alpine: Cooling, current temperatures lower than 30 years ago (artifact?)

Thermal profiles

10-day intervals plotted with critical temperatures for each habitat

Thermal conductance (measured by O2 consumption): variation over time

Changing thermal conductance to withstand different temperatures

10) Connie Millar – Distribution, geomorphic, and climatic relationships of pika in the Sierra Nevada and Great Basin

Rapid geographic assessment, geographic properties of talus fields, internal dynamics of talus fields

Site occurrences confirmed by pellet vouchers; observation of pikas, fresh sign vs. decomposed sign

519 sites: "site" = max average territory (50 meters), demes, regions, mt. ranges.

Geographic: elevational range 6000-13000 ft, all slope aspects

Types of talus: rock-ice features-RIF (85%), Non-RIF, anthropogenic

Water drainage properties (outlet streams) – persistence vs. drying

Thermal environment within talus or on pika collars

Gradients from low to high elevation in talus fields (surface = big daily temperature fluctuations); within matrix less daily variation (about 1 meter down)

Winter at surface stays warm, in rock matrix much colder: Hay piles at the surface

11) Mary Peacock – Dispersal in fragmented habitats: using genetic markers to understand long term movement patterns

Bodie (low elevation) & Tioga Pass (high elevation)

Population level

Using nuclear markers to look at movement patterns

Low Elevation:
Continuous versus highly subdivided habitats: identified hay piles;
Continuous: distance of juvenile dispersal varied, heterozygotes
Subdivided: genetic clusters that changed each year, multiple dispersal targets
– Genetic mixing
High elevation:
Movement between patches short distances apart
Genetic similarities used to infer movement patterns of juveniles: Establishing territory governed how far they went (competition for resource)
Great Basin (Ruby mountains, east Humboldt, NV):
Genetic structure in populations different distances apart
Populations significantly different
Microsatellite data:
genotype only (breeding groups) – shorter distance more sharing of genotypes; larger space between populations show distinct groups but still some mixing

12) Toni Lyn Morelli & Deana Clifford – Pika Handling and Health

Microclimate data and movement on micro scale
Protocol: collars
Techniques used by researchers: destructive sampling, no anesthesia, anesthesia (which drugs)
Isoflurane methods: cotton ball (short duration) vs. flow vaporizer (long duration)
Method mortality: Establish safest, most reliable methods for handling/anesthesia
Safety spectrum between no to light to heavy anesthetic
Formal studies to investigate needs to use anesthesia?
Establish health working group?
Disease factors in smaller populations?
Interactions between climate change and disease exposure?

13) Scott Loarie – Persistence of American pikas through changing climates

Historic pika persistence modeling future persistence (spatial models used for temporal processes being used, not reliable)
97 paired surveys (historic and resurvey): Rocky Mountains, great basin, cascades, Sierras: 8 extirpations
Climate features (4 variables) and pika observations over time 1900-2012
What drives variables: snow-cover relationships, vegetation, precip., etc.
Modeling persistence: Probability of extinction, probability of surviving an interval
Tested combinations of variables to predict loss
Recent declines/extirpations used to test the models: need better data
438 sites: historic combined with predicted models (different scenarios) of annual extinction probability
Projected model of extirpation probabilities 2010-2099 on a map: higher projection in west, lower in the east

14) Chris Stermer – Towards a California-based ecological niche model for the pika

Habitat modeling and prediction based on habitat requirement

Lacking range-wide distribution data: drives population trend information such as habitat requirements

Conducting field surveys of potentially suitable habitat to develop models

CNDDB data: 111 occurrences, 20 after 1980

Distribution based on elevation, temperature, talus slopes

What is potentially suitable habitat: accurate, finer scale model needed

Habitat model layers:

E.g., tree-size classes for GGOW, meadows, precipitation, elevation, slope, etc.

Site-specific prediction:

What spatial layers are needed in the model (talus slope, meadow/vegetation at alpine level, etc.) – layers being developed over next couple of years

Models to be used for driving survey effort, not enough data to use for extrapolation

15) Trisha Roninger - Update on federal listing petition, including information needs

Listing Process flowchart: Petition, 90-day review, status review, determination (pika is in status review Feb 2010); warranted but precluded = candidate; warranted moves to proposed rule (published in federal register); rule peer reviewed; final rule published with listing status; spp listed 30 days later.

Factors in anaysis: Habitat, over-utilization, disease/predation, regulatory mechanisms, other factors

Data gaps for pika: Need survey data/trend information (only 2 long-term data sets) for 10 states and Canada;

Need to set up long-term monitoring sites

Prediction variables for extirpation, besides climate

Variables that allow for pika persistence – what common themes in large variety of habitats; sub-surface microclimates, information about disease, fecundity and survivorship and how they vary per habitat

Focus on indicator species or assemblage of multiple species?

Would listing affect research?

Standardized protocols, permit requirements, advances science by determining recovery prioritization

ESA not the method to changing global stressors; but can offer specific management

Conservation moves forward whether or not listed

16) Scott Osborn – Update on California listing petition

History: 2007 CESA petition submitted; DFG reviews, analyzes, and makes recommendations to FGC

Petition evaluation: trend, range, distribution, abundance life history, threats, management, immediacy of threat

Recommendation was to reject petition

Lacking in trend, range, distribution, abundance data, misrepresented some other data

2008: More information became available: April FGC rejected petition, adopted in June

Challenge filed in superior court: May 2009: mandate to reconsider decision + additional information submitted

June 2009: FGC rejected 2008 findings and again rejected petition

October 2009: Challenged again

Fish and Game Next Steps:

Minimize California's effects of climate change: adaptation and mitigation practices
(Populations' resiliency to effects of climate change)
Support robust populations and healthy habitats
Address uncertainty through partnerships and acting now
Data needed: distribution and abundance, predicted climate change effects, ascertain other threats, adaptation opportunities for pika, reducing carbon emissions
Conservation: Low elevation habitat management, wilderness use

17) Shaye Wolf – Protecting the American pika under the Endangered Species Act

Protections listings can provide
Listing criteria: if continued existence is imperiled.
Endangered: throughout all or significant portion of range
Threatened: Likely to become endangered in foreseeable future.
Climate effects are time delayed
Current population declines not required to list a species: can be based on impacts and predictions of extinction
Can list species, sub-species, or populations
Listing process:
Status review is comprehensive look at best available science
Strategies for protecting speces threatened by climate change
Research/monitoring
Outreach
Mitigation:
reduce emissions
consider climate commitment and irreversible impacts
Adaptation
increase resilience
protect habitat, increase connectivity, reduce non-climate pressures, preserve genetic diversity
How listing can help:
Increased research/monitoring funding
Plays role in educating public: illustrates local impact of climate change
Mitigation/adaptation: Section 7 consultations
Adaptation: Recovery plan, habitat protection (including for movement), reduce non-climate stressors; critical habitat designated outside of historic range?

ITEMS LISTED FOR FURTHER DISCUSSION DURING THE PRESENTATION SESSION:

- DNA collection protocol: methods, where archived
- Key thresholds for temperatures (e.g., Tmin? Tmax?)
- Distinguish acute climate stress vs. chronic climate stress
- Remote mapping of talus
- Consistent placement of temp loggers
- Anesthesia methods and safety thresholds
- Variation in population-level dynamics affecting metapopulation models: core vs. satellite, sink vs. source; population biology utilized to make better predictions
- Blend large-scale to micro-habitat monitoring – monitoring increased (long-term recording systems)

- Other threats to population persistence besides climate change: e.g., Beever et al. Great Basin studies
- Data security

Notes from Priority-Setting Session

PRIORITY SETTING LIST CATEGORIES: RESEARCH, MONITORING, CONSERVATION

EXERCISE:

1) A list of priorities for each category was compiled by having each participant verbally list their priorities. The facilitator solicited input from all participants by going around the room 3-4 times until participants felt that suggestions had been sufficiently exhausted.
2) The lists were briefly discussed by the group as a whole, then each participate voted for their top 3 research priorities, and their top monitoring and conservation priorities.
3) Results of the prioritization process were summarized and discussed by the group as a whole.

COMPREHENSIVE LISTS

RESEARCH:

- Establishing baseline health and disease program for pika populations
- Physical adaptive capacity
- Lower elevation boundary across distribution
- Impacts to habitat other than climate change
- Hindcasting for model evaluation
- Evaluate talus thermal characteristics
- Identify microhabitat use
- Relate individual mortality to microclimate
- Evaluating interspecific interactions
- Calculate effective population size
- Factors affecting persistence in marginal habitats
- Robust remote-sensing of potential habitat
- Limiting mechanisms affecting persistence
- Metapopulation dynamics and persistence – stability of site-level occupancy and overall size
- Paleo records and persistence
- Characterize source-sink dynamics at dispersal scale
- Social tolerance and food storing
- How to age pellets and other sign across the range (elevational and geographic)
- Investigate low-frequency climate effects
- Barriers to dispersal
- Community-level interactions: new predators, vegetation changes
- Coordinating research efforts
- Mining of the historical record
- Explore new modeling techniques for future climate projections
- Effect of rare events on distribution at various scales
- Diet diversity and habitat change
- Mapping landscape connectivity
- Investigate survey/monitoring methods using audio playback

- Cold-season behavior
- Genetic structure of California subspecies
- More data for detectability
- Balance intensive and extensive
- Pelage and rock-type and color

MONITORING:

- Assess distribution in new areas
- Centralized database
- Continue monitoring climatic and land-use factors
- Demographic and density monitoring along niche gradients
- Genetic monitoring of fecundity and dispersal
- New sites for time-series, long-term monitoring
- Establish citizen monitoring
- Long-term monitoring: identify most important co-variates and standardized techniques
- Proximate causes of death and reproductive failure: disease, predation
- Establish monitoring protocols, standardization of guidelines (handling, sampling)
- Coordinate monitoring efforts
- Characterize snowpack
- Use paleo data to identify refugia
- Balance intensive and extensive

CONSERVATION:

- Incorporate pika into other multi-species studies and monitoring
- Establish working groups: Expand and identify leadership
- Education and public outreach: emission reduction to protect pika
- Develop conservation strategies including refugia
- Determine necessary habitat protection
- PVA – prediction extinction model at appropriate scales
- Using predictive models for landscape conservation strategies
- Designate as Mammal Species of Concern for additional funding
- Cultivate powerful partners
- Costs/benefits of mitigation and adaptation strategies
- Translocation/reintroduction as a tool
- Involve Canada
- Out-of-the-box options for conservation options
- Develop conservation strategies in lieu of listing: include multiple spp
- ESA and CESA listing
- HCPs
- Suitability of current conservation areas to sustain populations
- Focus assessments on non-wilderness, non-protected areas

PRIORITIES THAT EMERGED FROM PRE-VOTE DISCUSSIONS:

- Metapopulation/source-sink dynamics at different scales (from species to group)
- Mapping talus habitat and water relations – fundamental to developing effective monitoring strategies (remote sensing)
- Leverage networks of other groups monitoring climate over mountain regions (coordination) – characterizing snow pack.
- Integration of behavioral ecology and physiology adaptive capacity
- Health issues
- Understanding distributional limits
- Multi-species strategies and incorporated into multi-species studies: conservation strategies
- 5-7 umbrellas: field surveys, metapopulation analyses, climate data and modeling, physiology and health, behavior ecology, physical environment, biotic environment

RESULTS OF VOTING PROCESS (including phone participants):

RESEARCH (3 votes/person; top ranked priorities marked with asterisk)

11 – Metapopulations and persistence, overall metapopulation size, stability of sites, souce-sink dynamics*
10 – Establish pika health program*
9 – Remote sensing of potential habitat*
6 – Map landscape connectivity
5 – Physiological adaptive capacity
5 – Barriers to dispersal
4 – Evaluate talus thermal characteristics
4 – Explore new modeling techniques
3 – Paleo data to identify refugia
3 –Aging of pellets and other sign
2 – Mine historical records
2 – Identify microhabitat use
2 – Cold season behavior
2 – Disease fecundity

MONITORING (1 vote/person; top ranked priorities marked with asterisk)

10 – Standardize protocols*
4 – Establish Centralized database*
4 – Demographics and density monitoring
2 – Assess distribution in new areas
2 – Longitudinal studies/time-series monitoring

CONSERVATION (1 vote/person; top ranked priorities marked with asterisk)

9 – Incorporate pika into multi-species studies*
5 – Establish working groups and leadership*
3 – PVA at appropriate scales
2 – Education and outreach
2 – ESA listing, conservation and outreach

Notes from Additional Planning Discussions

WHAT'S NEXT:

- Centralized database and standardized protocols; subgroups can work on right away
- Some attempt to pool those list items that did not receive votes into those that did
- What can happen soon:
    - Communication:
        - Notes distributed for revision
        - Contact information exchanged to foster discussion
        - Develop a web site
        - Post PDFs of presentations
- What requires more effort:
    - Symposia or special sessions at larger conferences, such as TWS or ESA
    - Work group meetings
- Work groups
    - Coordinating efforts and developing new material
    - Groups need coordinators – a single point source
        1) **California Pika Consortium committee**
            a. Will start with steering committee (Clifford, Millar, Morelli, Osborn)
        2) **Conservation work group**
            a. Logsdon, Morelli, Osborn, Wolf
        3) **Database Coordination work group**
            a. Finn, Isanhart, Koo?, Morelli, Osborn, Patton
            b. Coordinate and cache data into a central place
            c. Motivate and coordinate efforts to use historical data
        4) **Education and Outreach work group**
            a. Scott Loarie?
            b. Include citizen science, citizen mapping
        5) **Geomorphology and Habitat Mapping work group**
            a. Millar, Ray, possibly Pika East researchers
            b. Remote sensing of talus focus
        6) **Health work group**
            a. Brown, Clifford, Fleer, Foley, Morelli
        7) **Protocol work group**
            a. Millar, Morelli, Peacock, Perrine, Ray, Shardlow, West
            b. Find and post those that are already being used
            c. Coordinate efforts to develop standardized protocols for handling, DNA collection, surveying, etc.
        8) **Research Coordination work group**
            a. Peacock, Ray, West, Wright
            b. Includes protocols and remote sensing focus?
            c. Investigate potential (esp non-traditional) funding sources
        9) Ideas for other potential work groups
            a. Regional coordination
            b. Inventory and Monitoring
            c. Funding

d. Animal aspect (Ecology and physiology)

- Coordination with other work groups, species-wide efforts
  - Northern Rockies has a similar group
  - NPS
    - National monitoring plan for different parks
    - Jamie Belt
  - Lagomorph specialty group and pika subgroup
    - Andrew Smith leads
  - FWS – Isanhart and Roninger
- Further Actions?
  - Collaborative structure already in place if species is listed
  - Take advantage of existing data stores – centralizing data

Summary of Participant Feedback

COMMENTS ABOUT MEETING-VERBAL FEEDBACK:

- Free discussion is a huge benefit instead of just receiving information
- Good motivation for do-able tasks
- Could have lasted a couple of days
- Need specific goals to make sure progress is made/momentum continues
- Good to see coordinating efforts and what other people are doing
- Meeting other people involved was good
- Happy that we did not use the term "Captive breeding"
- People from different disciplines with common interests and need to interact created a great synergism
- Information overload in short period of time
- How to go from the lists to the next step? Concern about follow-through
- Current information and updates was useful
- Great learning experience
- Single-species focus concern: need to look at pika in broader context
- Moderators did a good job of staying on task
- Good turnout: Leadership and shared vision moving forward
- Great starting point
- Excellent organization, coordination, participation, re-engage in science
- Discussion and learning with good product
- Concern: Committing people's time and priority
- Energized by thoughtfulness of various approaches
- List is comprehensive: valuable for the future for other species as well
- Positive
- Standardized protocol idea will help us understand the species
- Phone participants didn't receive all/most updated powerpoint presentations

COMMENTS ABOUT MEETING-WRITTEN FEEDBACK:

All participants said they found the meeting productive, mostly because it was/had: well-organized, product-oriented, enthusiasm, good moderation, good discussions/dialogue, great/diverse topical coverage, meeting people in person, reviewing and sharing the range of pika research, good selection of participants, increased awareness, brainstorming holes in research. Criticisms were primarily regarding the size of the room (too small) and length of the meeting (too short). Specific responses are below.

1.) Yes, the meeting was productive because
    a. Greatest value was broad competence (biological and political) of group and enthusiasm for diverse and high quality research.
    b. It was well-organized and product-oriented. A good effort by moderators to keep talks on time.

c. The benefits were meeting people in person and reviewing the range of new research.
d. You got people in one room to describe the work they are doing.
e. Well-organized; good selection of participants; professional moderating.
f. Great topical coverage; lots of experience in the room; increased awareness (mine and group).
g. Good accumulation of data, plus critical evaluation of next steps. Good discussion in addition to research summaries.
h. Sharing of information, brainstorming holes in research.
i. Very good discussion, very good leadership and moderating.
j. Lots of information got out there, lots of good dialogue; good motivation.
k. Good facility and sharing of information for follow-up.
l. Good ideas exchanged; learned about "players" and projects.
m. Mainly because of info sharing.
n. Needed a longer meeting.
o. However too much in one day.
p. (Yes and no) Pika may not be the most threatened alpine/subalpine species.

2.) Most important thing I learned:
a. Total group membership and diversity of science.
b. Greater knowledge on the species.
c. Better understanding of current pika research and monitoring.
d. Who is doing what where and a discussion of what was being done.
e. Meeting colleagues to collaborate with.
f. Contacts.
g. Names, affiliations, locations (study locales) for various investigators/participants.
h. New contacts and knowledge of What is going on in Pika Research and development of work groups.
i. What is thought to be more important needs for pika research/monitoring/conservation; good information on current research.
j. We should standardize protocols and create a centralized database for information.
k. The level of interest in pika/alpine species conservation and research and potential for future network.
l. Put faces to names; ideas for projects and collaborations.
m. Contacts.
n. Lots more going on than I realized!
o. We need to expand the working groups to include climate/microclimate specialists
p. Getting to meet other people.

3.) Criticisms: (Summary: bigger room, more time, specifically more discussion time)
a. None.
b. Bigger room. Slightly rushed, and could have been a multi-day meeting.

c. More break time to have discussions with others. More time for questions and discussion after presentations.
d. A discussion of how the pika fits into the broader issue of ecosystem change (see Comments b).
e. Longer – several days; develop working groups.
f. Fewer talks, more discussion (moderated).
g. Provide lunch (ha ha). A bit bigger room. But very minor—it was great.
h. Multiple days so more discussion could occur.
i. Larger room and that is all-the rest was excellent.
j. Fewer opinions (ha).
k. Size a little large, tighter focus on research.
l. Larger space.
m. More time.
n. Just too short.

4.) Other Comments:

a. I am not sure I saw the real utility in the prioritization activity, at least in the way it was structured for the meeting. I am also a bit leery of such a single-species focus in an era of wholesale ecosystem changes.
b. Looking forward to continued focused collaborative work.
c. Too bad no one from NPS participated! I know at least some NPS people were aware of this. Great meeting-thanks for organizing this!
Hope this becomes a regular event.
d. Food choice was great ☺
e. Great job-one of the best workshops I've been to.
f. Excellent effort! More land manager representation would help; Keep energy and connections going; Appreciate participation from beyond area and state.
g. I still don't understand how to wrap my head around the time and money needs for accomplishing the many research goals.