

# Front Range CFLRP Wildlife Monitoring Update 2017 Data Jam Session

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and

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On behalf of the Wildlife Working Team

*Wildlife Working Team, 24-May-17*



COLORADO FOREST  
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# Quick Presentation Overview

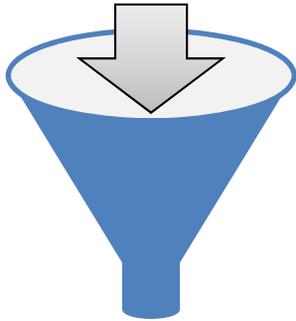
- Brief background to wildlife monitoring approach
- Implementation progress to date
- Data stewardship and results to date
- Framing initial analysis for 2 years of monitoring data
- Discussion: identifying covariates, integration with other CFLRP monitoring efforts and products

## Wildlife Working Team

*Casey Cooley (CPW), Jenny Briggs (USGS), Kevin Barrett (CFRI), Lynne Deibel (USFS), Rick Truex (USFS), and formerly Janelle Valladares (USFS), Hal Gibbs (USFS), Steve Germane (USGS), and now with new recruits from BCR*

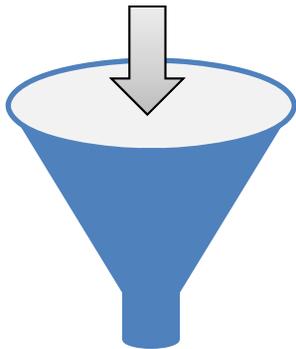
# Species Selection Framework – Filtering species from a whole bunch to a practical few

Begin – 300+ species



**Filter 1:** limit candidate pool to species whose range includes the Core of CFLRP

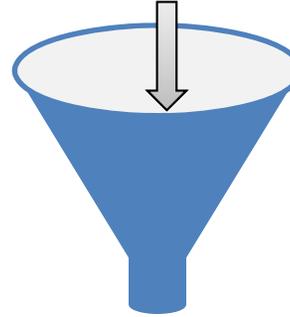
Reduced to ?? species



**Filter 2:** “Score” species for each of the monitoring groups, develop criteria for keeping for further consideration

Reduced to ?? species

From filter 2: ?? species



**Final Filter:** Consider stressors, sampling approaches, life history etc to identify final species

Reduced to ?? species / species groups

## **For Selected Species**

- Power analysis or similar
- Cost / benefits of different monitoring approaches
- Make recommendations that include range of options

## Ecologically Informative

- functional groups
- PIPO specialists
- Trophic representation

# Filter 1, Process Step 2

## Assign scores in monitoring groups

### House wren – Score = 0

The species is not a year-round resident of the lower montane, is small-bodied and therefore not likely of great importance in the food web, and is a habitat generalist. And so on.

### Abert's squirrel – Score = 3

Rationale: The species is strongly associated with ponderosa pine (PIPO) forests, is a year-round resident, relies largely on cone crops for nutrition and energy, requires some degree of interconnected tree crowns for secure movement, and is an important food source for secondary consumers (key ecological function; KEF) particularly during winter when many other prey species migrate or hibernate and are unavailable to predators. And so on.

### Black bear – Score = 1:

The species is a true generalist, providing and performing many ecological functions and using a wide range of habitats which include but are not limited to the lower montane.

The broad set of ecological functions performed by black bear make the species less ecologically informative than species with fewer ecological functions. Black bears may exert pressure on other species through predation or herbivory. Many KEFs are performed by other species.

# Filter 1, Process Step 2

## Assign scores in monitoring groups

### Scoring Criteria as Follows

0 = Species does not appear on any special status list

1 = Species appears on one special status list (e.g., CO State Wildlife Action plan species of greatest conservation concern, PIF, BLM sensitive, FS species of local concern)

2 = Species is a FS Sensitive Species or Management Indicator Species, appears on more than one special status list, or is a candidate species under ESA

3 = Species is listed as Threatened or Endangered under the ESA, or is proposed for listing

### Politically Prudent

- ESA listed & candidate spp.
- FS Sensitive Species
- State species of concern
- MIS

### Examples

Pygmy Nuthatch = 1

Townsend's big-eared bat = 2

Pawnee Montane Skipper = 3

# Filter 1, Process Step 2

## Assign scores in monitoring groups

### Several criteria – again, no formula

**Game species**: species that are legally hunted or fished. Species that generate large revenues should be ranked higher than those that are legally hunted/fished, but do not generate considerable revenues.

**Watchable wildlife**: ‘destination species’ for wildlife tourism- most birds, charismatic mammals, some butterflies.

**Iconic species**: species recognizable to the majority of the public as part of the forested or aquatic ecosystems in the Front Range or beyond. Examples: mountain bluebird

**Other species that evoke strong public awareness**, either positive or negative, and/or may have **economically important impacts** on natural resources in the lower montane (e.g., beavers as pests, mountain pine beetle, rattlesnake)

### **Species of cultural importance**

### **Economically / Socially Important**

- Game species
- Watchable wildlife (enthusiasts)
- Iconic and culturally important spp.
- Other economically important spp.

# Final Candidates for Monitoring

1. Bats
- 2. *Songbirds & Woodpeckers***
3. Owls & Raptors
- 4. *Tree Squirrels***
5. Carabid Beetles



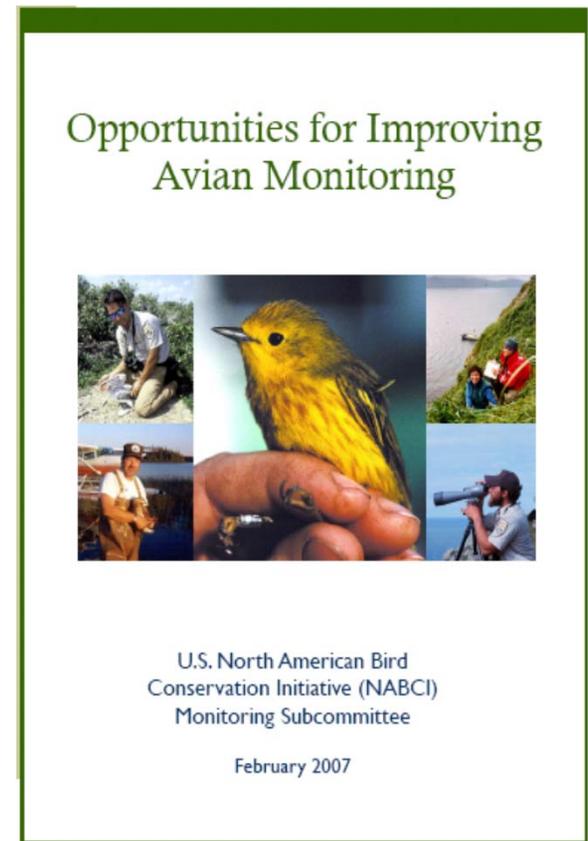
# Tier 1 Priority Species

- Golden-crowned Kinglet
- Olive-sided Flycatcher
- Mountain Bluebird
- Pygmy Nuthatch
- Hairy Woodpecker
- Williamson's Sapsucker
- Abert's Squirrel
- Pine Squirrel



# Opportunities for improving avian monitoring

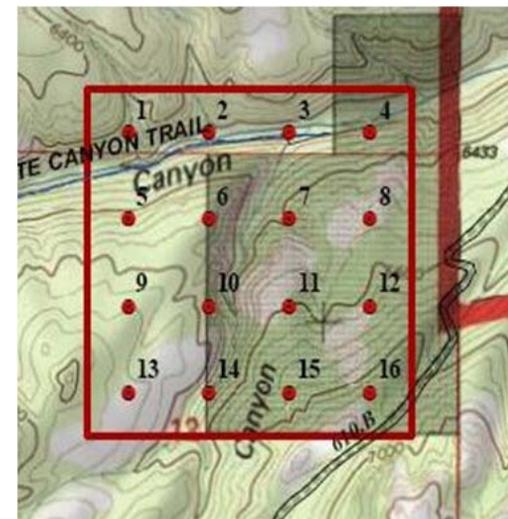
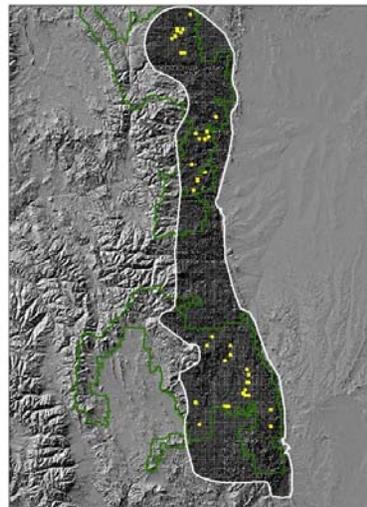
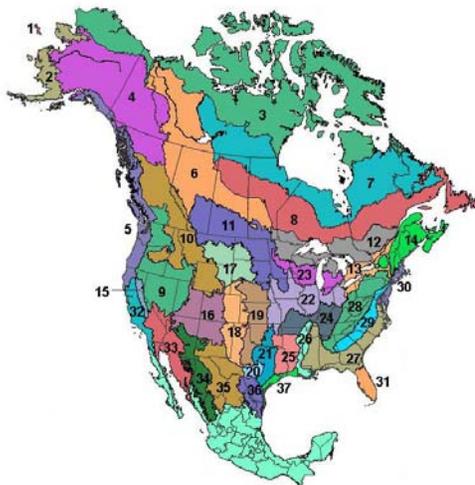
1. Integrate monitoring into management and conservation
2. Coordinate monitoring programs among organizations and spatial scales
3. Increase the value of monitoring data by improving statistical design
4. Maintain monitoring data in modern data management systems



*US NABCI Monitoring Subcommittee, 2007, USFWS.*

# Integrated Monitoring in Bird Conservation Regions (IMBCR)

- Partner-based approach coordinated by Bird Conservancy of the Rockies
- Hierarchical stratification schem
  - Stratified management units at local scales
  - Nested management units aggregated at multiple scales
- Spatially balanced sample, 1-km<sup>2</sup> grid cells with 16 point counts
- Estimate occupancy and density for multiple species



# “Pseudo BACI design”

WWT team GIS analysis (J. Valladares lead) identified candidate “treatment” areas within CFLRP footprint plus nearby “control” areas

## Site Selection Criteria

- Based on RMBO’s IMBCR Grids
- Selected cell 80% USFS
- Selected grid that between 6,000 ft and 9,500 ft
- Excluded fires between 1998 and 2013
- Develop 2 strata:
  - “Treatment”- cells w/ expected treatments areas ( $\geq 30\%$ )
  - “Control” – all others in elevation band

BCR manages data

# Implementation 2014 – 2016

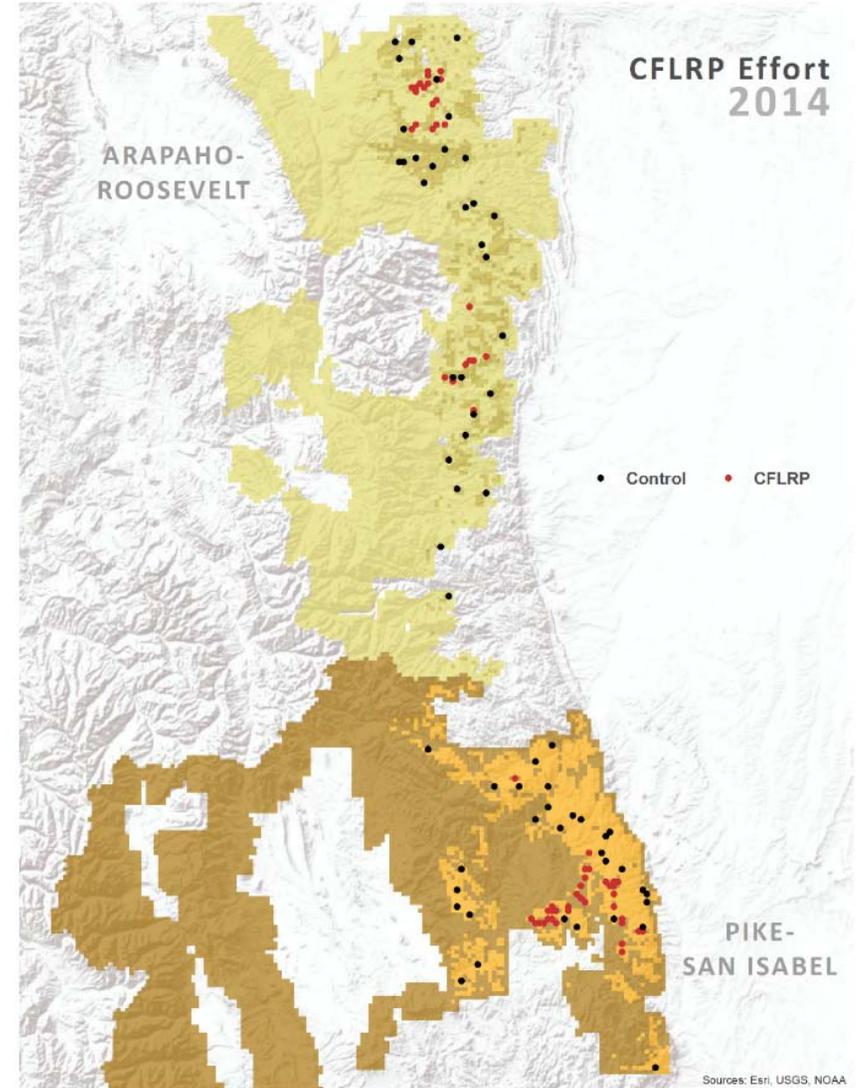
## CFLRP Treatments and Contrtols

### Number of grids

Year	CFLRP		Control	
	AR	PS	AR	PS
2014	25	35	30	30
2015	10	10	15	15
2016	28	32	30	30

### Number of points

Year	CFLRP		Control	
	AR	PS	AR	PS
2014	307	440	320	341
2015	118	121	165	174
2016	387	479	329	416



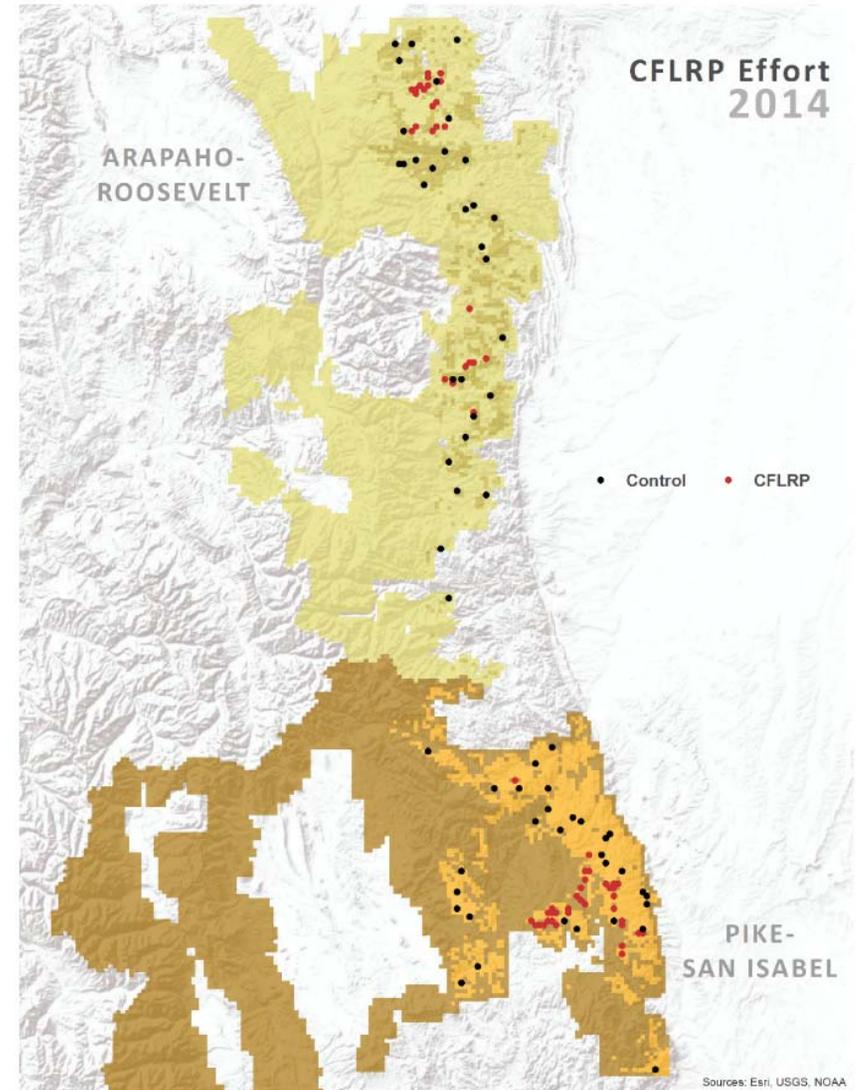
# CFLRP treated? based on 2014 info. (2014 - 2016)

## Number of grids

Year	Treated?		Total	
	AR	PS	AR	PS
2014	10	13	25	35
2015	4	4	10	10
2016	8	12	28	32

## Number of points

Year	Treated?		Total	
	AR	PS	AR	PS
2014	66	103	307	440
2015	21	32	118	121
2016	58	112	387	479



# Complimentary Wildlife Monitoring Efforts

Pilot monitoring work completed:

- Camera traps within IMBCR grid cells (Cooley lead)
- Integrating Abert's squirrel feeding sign surveys into IMBCR sampling framework (Briggs et al lead)
- Prelim results previously presented, goal to synthesize pilot effort in next 8-10 months and make final recommendations

Wildlife "Mothership" Protocol:

- Integrate cameras, sign survey, "good" veg sampling (and bat detectors, carabid beetle traps etc) into IMBCR protocol
- Every addition to the protocol potentially impacts overall avian monitoring approach