



Photo Credit: Carl Johnson, 2009 ROMO Artist-in-Residence

Managing Research Activity in Wilderness

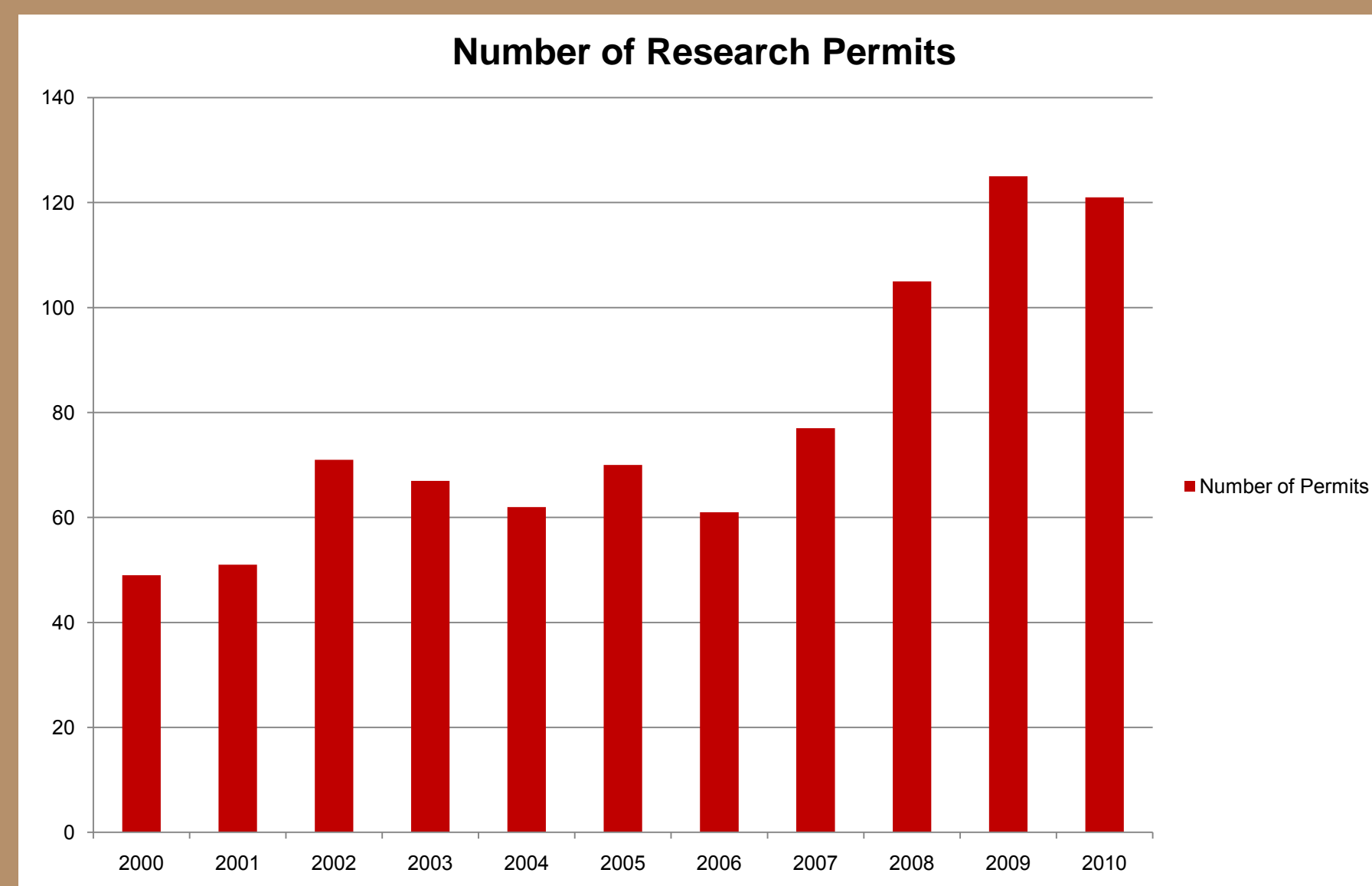
Rocky Mountain National Park: Estes Park, CO

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Background

In the decade following the Natural Resource Challenge (2000-2010), research permits in Rocky Mountain National Park (ROMO) more than doubled, from 49 to over 120. Because one in four permits involved equipment or plot installation, the need to develop a tracking system for installations related to research became clear.



Actions to Date

To allow for a robust sorting of information, ROMO resource staff collaborated with a data manager for the Rocky Mountain Vital Signs Network (ROMN) to build an Access database. In addition to basic information such as location and description, wilderness status, impact category, and hydrologic unit code (HUC) fields were eventually added to facilitate the assessment of the impact of scientific activities on wilderness character. Refinement of the database continues.

No.	Project/Name	MUTID	Location/Description	Object/Description	Object/Type	In/Out	Visual	Score
1378	Bentley Lake Vase Marker	Glacier Creek	Look table in small clearing	NADP wet bucket, weather station, rain gauge	Equipment	0	15	1
1363	Achuff Glaciers	Glacier Creek	Base set up at Granite Plot near the trail to the Boulderfield	Base marked with either a Phillips head screw or a washer opposed to a rock, a small rock was placed over the mark	Plot	0	1	5
1362	Achuff Glaciers	Glacier Creek	Boulderfield	Marked with either a Phillips head screw or a washer opposed to a Plot rock, a small rock was placed over the mark	Plot	0	1	1
1363	Achuff Glaciers	Glacier Creek	Boulderfield	Marked with either a Phillips head screw or a washer opposed to a Plot rock, a small rock was placed over the mark	Plot	0	1	1
1364	Achuff Glaciers	Glacier Creek	Boulderfield	Marked with either a Phillips head screw or a washer opposed to a Plot rock, a small rock was placed over the mark	Plot	0	1	1
1365	Achuff Glaciers	Glacier Creek	Boulderfield	Marked with either a Phillips head screw or a washer opposed to a Plot rock, a small rock was placed over the mark	Plot	0	1	1
1366	Achuff Glaciers	Glacier Creek	Boulderfield	Marked with either a Phillips head screw or a washer opposed to a Plot rock, a small rock was placed over the mark	Plot	0	1	1
1367	Achuff Glaciers	Glacier Creek	Rock outcrop located before the hitch rack on the Flat Top	Camera attached to PVC pipe attached to a rock outcrop. Also there is a solar module power pack	Equipment	0	5	5
2284	Costello MFB	Lake Estes Big Thompson River	Upper Beaver Meadows	Transect for Mountain Pine Beetle	Transect	0	1	1
2248	Costello MFB	Glacier Creek	Hollowell Park	Transect for Mountain Pine Beetle	Transect	0	1	1
2249	Costello MFB	Glacier Creek	Hollowell Park	Transect for Mountain Pine Beetle	Transect	0	1	1
2250	Costello MFB	HW N Sant Vrain Creek	Wild Basin	Transect for Mountain Pine Beetle	Transect	0	1	1

Impact Categories

Impact categories adapted from Yosemite National Park (Fincher, personal communication) have been used to create a baseline "score" for installations using four broad categories ranging from visible from a long distance (score =15) to barely discernable (score= 0.1). Altogether the database documents more than 2000 installations.



Category 1
Barely discernable
installations = 0.1
(equipment under a fake rock)



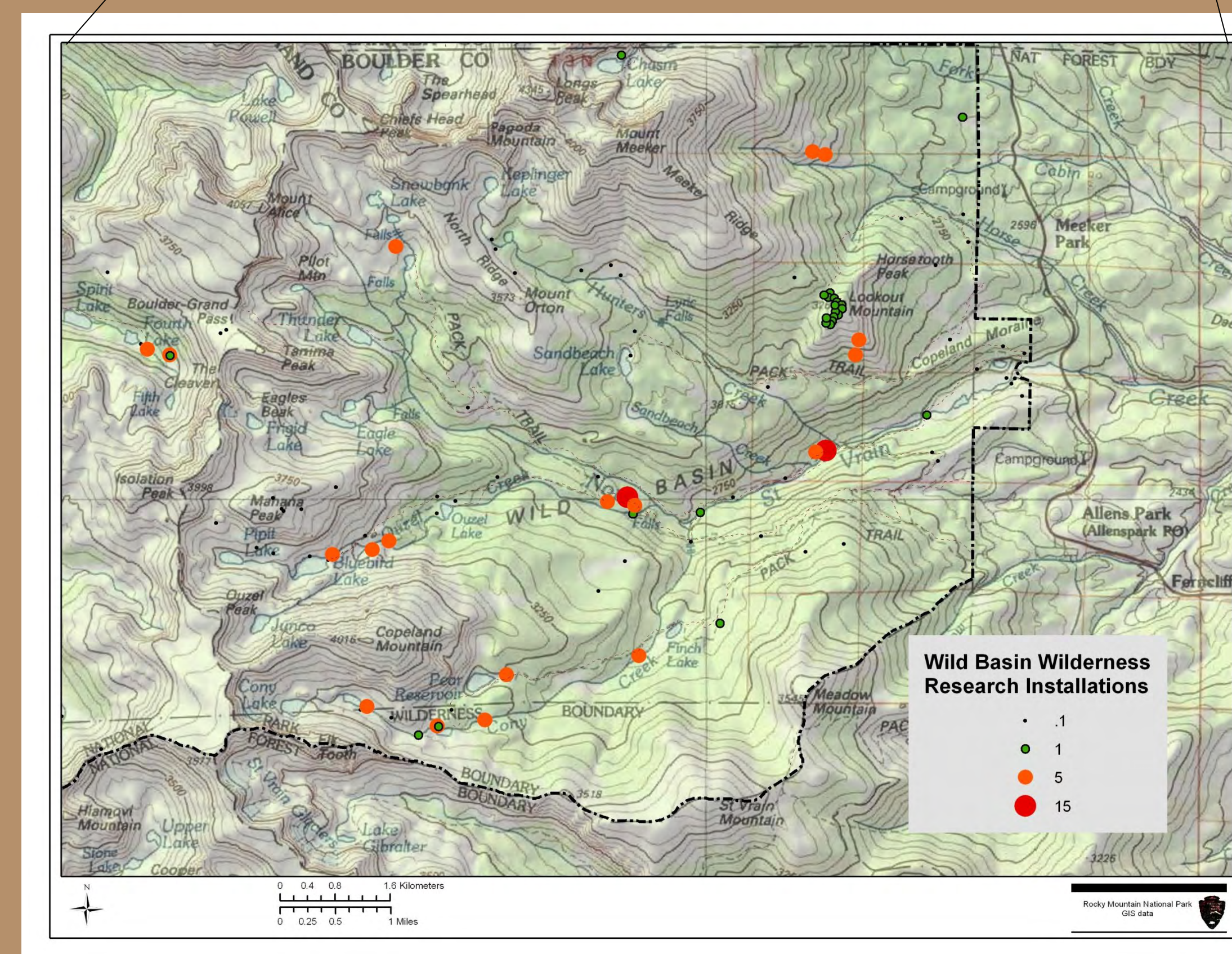
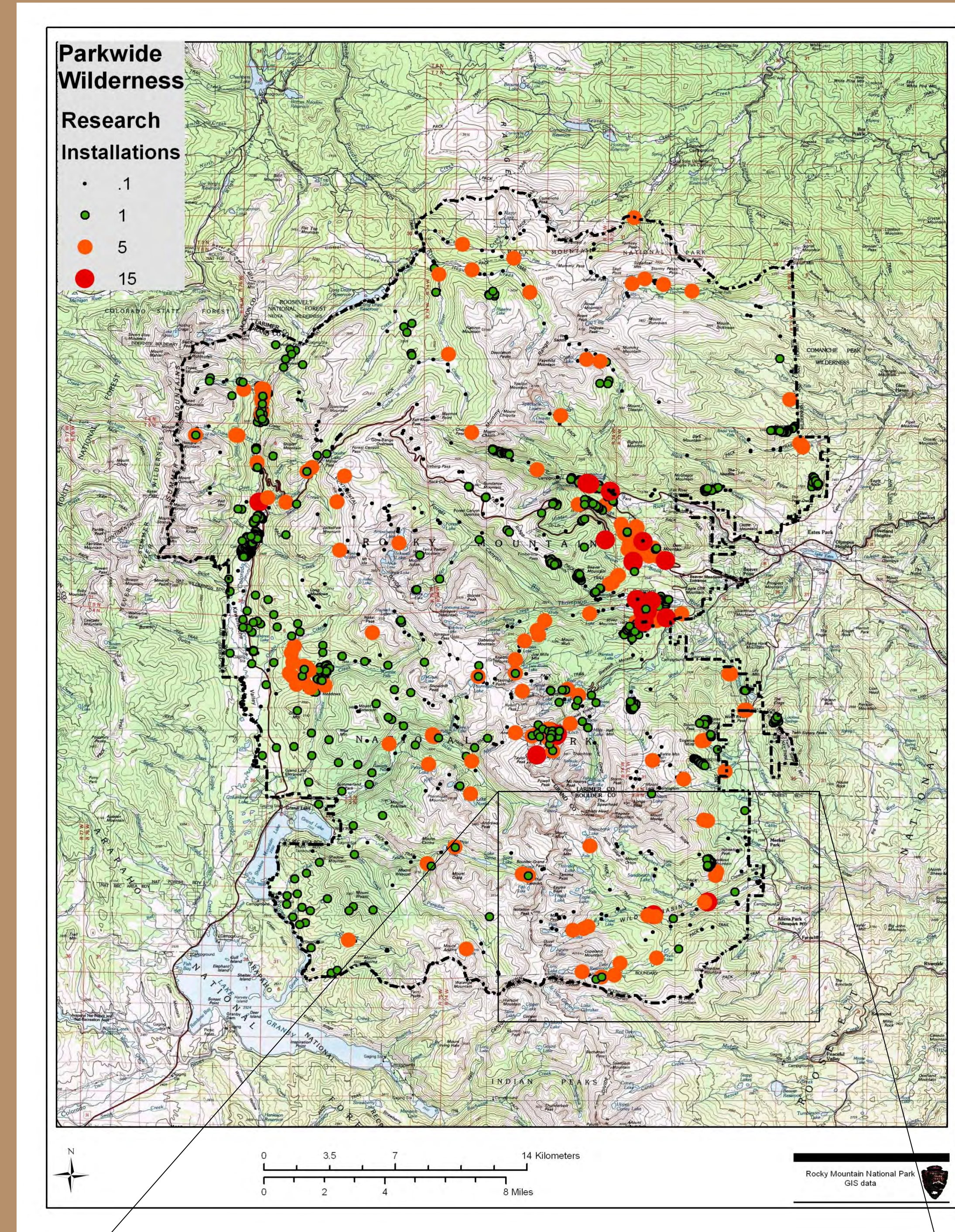
Category 2
Unobtrusive
installations = 1



Category 3
Obtrusive installations
= visible from 20 m = 5



Category 4
Very Obtrusive
= visible from long distances = 15



Spatial Database

A GIS layer, viewable in ArcGIS or ArcReader, was developed to create a visual, interactive display of location, description, and impact score. Icons of varying size were used to indicate impact scores.

In addition there is a photo layer linked to the database which further enhances the ability of staff to portray individual installations.

Positive Outcomes

- Ability to quickly identify installation and equipment purpose
- Easy identification and removal of installations from the field and the map that are no longer a part of active projects
- Resource staff are better equipped to consider the cumulative impact of research activity park-wide and in individual watersheds

Questions Under Discussion

- Management actions to address resource issues (e.g., elk exclosures) also result in infrastructure that is not, strictly speaking, research – but is often categorized as such. How should these be tracked?
- Should items further in the wilderness received a higher or lower impact score? Is it better to cluster or scatter equipment?
- How should research visits, a potentially significant impact on wilderness, be tracked?

Next Step

The Continental Divide Research Learning Center in partnership with the park wilderness staff is developing a strategy to monitor wilderness character using existing research and monitoring project data. Trends in air quality, stream flow, temperature and water quality and other metrics will be used to enhance science-based wilderness management.

*Although most of Rocky Mountain National Park had been managed as wilderness by policy since the 1970's, only a small portion had been designated by Congress as Wilderness. This changed in 2009 when 95% of all park lands officially came under the umbrella protection of the Wilderness Act.