Monitoring Practice in California:

Results from the Interview Phase of the National River Restoration Science Synthesis Project

Rebecca Lave, G. Matthias Kondolf, Shannah Anderson, Laura Pagano

UC Berkeley Geography and LAEP

Overview of Talk

- a BRIEF history of NRRSS
- California data on monitoring practice
- California data on project evaluation
- Conclusions

I. Overview of NRRSS Project

The NRRSS Project

- Goal: characterize and evaluate current restoration practice in the U.S.

- Phase I
  - Summary database of >37,000 projects
  - Mined from 18 federal + state, regional and local databases

- 7 nodes

The NRRSS Project, cont.

- Phase II
  - Structured interviews with practitioners
  - Design, monitoring, implementation and evaluation
  - Randomly-selected
  - Anonymous

The NRRSS Project, cont.

- 48 interviews (44 in California)

- 12 in each of 4 intent categories:
  - Riparian management
  - water quality management
  - in-stream habitat improvement
  - channel reconfiguration

II. California Monitoring Data

Quantity of Monitoring

- 89% (38) monitored (nationwide 83%)
- Enabling factors:
  - mandates from funding agencies (32%)
  - personal commitment (30%)
- Constraining factors:
  - lack of funding (45%)
  - lack of staff time (30%)

Most Common Types of Monitoring

Biological

- Birds 19%
- BMI 27%
- Vegetation 58%
- Fish 73%

Physical

- Long-profile 19%
- Pebble count 19%
- Cross-sections 46%
- Other 50%

Chemical

- Turbidity 16%
- Temperature 42%
- Water quality 74%

Comprehensiveness of Monitoring

- Number of types of monitoring conducted:
  - Ranged from 1 to 20
  - median = 3

- Wide range of **comprehensiveness**
  - 29% biological, chemical and physical monitoring
  - 11% only photo points, visual observation

Timing of Monitoring

- 1/3 before or after
- 1/3 before and after
- 1/3 before, during and after

Duration of Monitoring

- 18% Once
- 5% During one year
- 56% 2 to 5 years
- 9% 6 to 10 years
- 12% >10 years

- Note: approx. 2/3 of duration included both before and after

Use of Reference Reaches

- 24% of projects included some kind of reference reach analysis

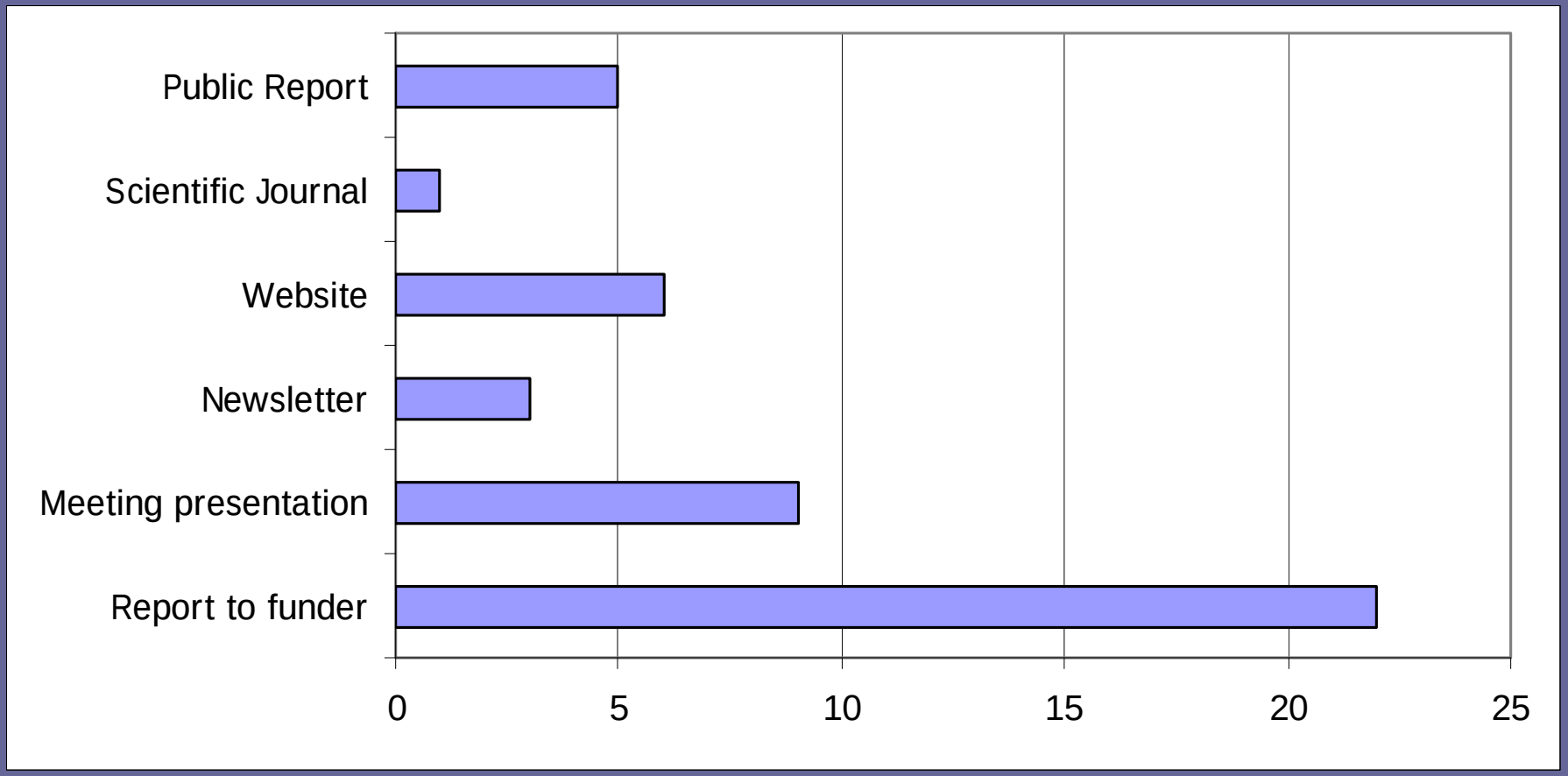
- 9% monitored at a reference reach before and after the project

Reporting Results

- 30% did not report data anywhere

- Of those that did:
  - 70% reported to one or two places
  - 44% reported only to funding/permitting agency
  - Only one published data in a journal

Where Monitoring Data Were Reported



Analysis of Monitoring Data

- Only 66% (25) of monitoring data analyzed
- 5 out of 25 used statistical analysis

Summary of Monitoring Practice

- More monitoring than most would think, but….
- Comprehensiveness, timing, duration, scale, and analysis uneven
- Where is the data?

III. California Data on Project Evaluation

Project Evaluation

In California:

- 52% completely successful
- 36% partially successful
- 4% (2) failed completely

- Nationwide 65% completely successful

- How is success evaluated?

Project Evaluation

Measurable success criteria?

- 43% had measurable success criteria (55% nationwide)
- Only 23% (9) used them to evaluate (18% nationwide)

Project Evaluation, cont.

- >50% visual observation
- 47% monitoring data
- 28% positive public reactions

Criteria for Evaluation

- Almost 2/3 cited positive effects on fish, wildlife or plants, but…
- > 1/3 positive effects on community
- > 1/3 increases in their organization's capacity
- ¼ improving appearance

Criteria for Evaluation, cont.

Additional benefits most often social/ organizational:

- Increased community awareness of restoration
- Increased ability to carry out restoration projects
- only 19% new scientific information

IV. Conclusions

Conclusions

- For monitoring, issue is quality not quantity
- Training and support to make monitoring data more useful is critical, but so is reporting
- Measurable success criteria should be expanded to include social and organizational goals

Acknowledgments

- Thank you to all of our interview subjects!
- rlave@berkeley.edu for questions and comments
- Funded by:
  - California Bay-Delta Authority (CALFED)
  - Beatrix Farrand Fund of the Department of Landscape Architecture and Environmental Planning of the University of California, Berkeley