CALIFORNIA FIRE SCIENCE CONSORTIUM

Research Brief for Resource Managers

Release:	Contact:	Phone:	Email:
May 2020	Jon E. Keeley	(559) 565-3170	*jon_keeley@usgs.gov*
	Marti Witter	(805) 370-2333	*marti_witter@nps.gov*
	Liz van Mantgem		*evanmantgem@usgs.gov*

Central and Southern California Team, USGS Sequoia and Kings Canyon Field Station, Three Rivers, CA 93271

Simple Monitoring Frameworks Can Build Effective and Cooperative Communities of Practice

Lawson, D.M., and J.E. Keeley. 2019. Framework for monitoring shrubland community integrity in California Mediterranean type ecosystems: information for policy makers and land managers. Conservation Science and Practice: e109. 10 pp. 10.1111/csp2.109

Management Implications

- Conceptual Monitoring Frameworks should use simple metrics that nonexperts can understand.
- Using the framework to both communicate and coordinate efforts by diverse stakeholders can build a strong and effective community of practice.
- Over time, the simple metrics data accrued by the framework will be used to update landscape integrity maps and address various management questions as the human community grows.

Threatened Mediterranean-type Ecosystems are highly diverse and offer essential ecosystem services to a wide range of stakeholder communities all over the world. They are also heavily used and disturbed. To simultaneously preserve Mediterranean-type ecosystems and build cooperative human relationships through effective communities of practice, these authors suggest using simple **Conceptual Monitoring Frameworks**. Easy-to-understand monitoring frameworks create a common baseline resource standard that can be easily understood and allow diverse stakeholders with different needs to work together to restore and protect Mediterranean-type ecosystems into the future.

To illustrate the integration of such social and ecological complexities, Lawson and Keeley (2019) present an example of a California shrubland Conceptual Monitoring Framework. By using relative shrub and annual grass cover as a simple metric of ecosystem integrity (Fig. 1), they demonstrate that non-specialists can reliably detect and quantify the degree of ecosystem disturbance.

Figure 2 illustrates the general process where disturbance cover classes are mapped to provide an initial baseline integrity map, which is then updated, reviewed, and revised based on rapid assessment and plot-based field validation.

Landscape integrity maps can make monitoring repeatable, cost effective, and timely. They also make it possible to predict vulnerabilities and forecast ecological thresholds, degradation, and recovery dynamics. Most importantly, these concepts can be framed through easily understood metrics to build stakeholder consensus and coordinated action.

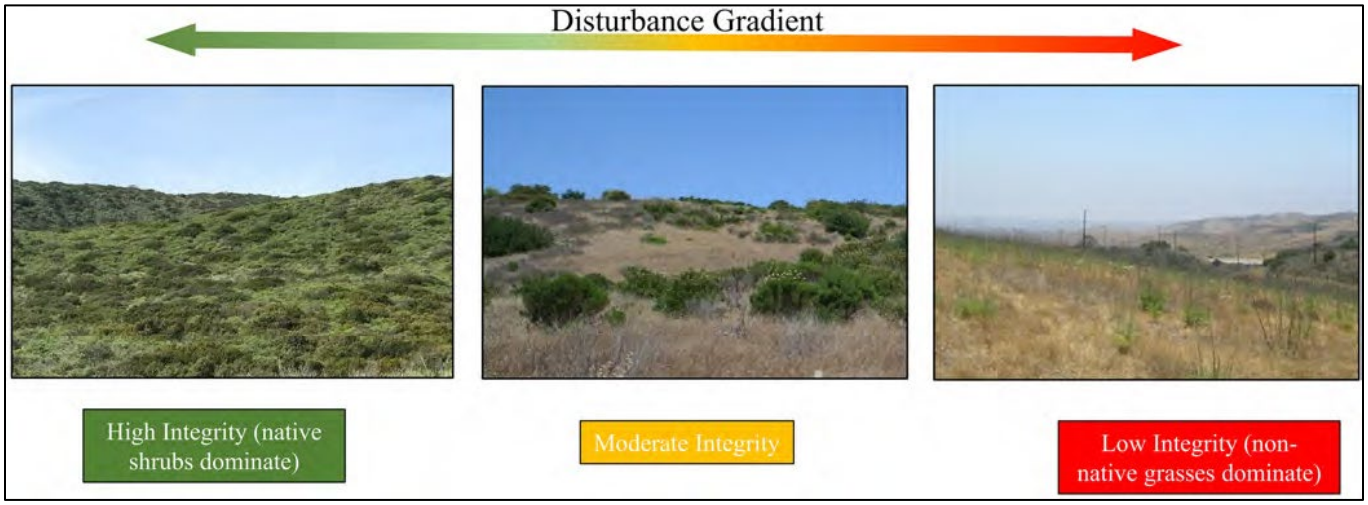

FIGURE 1 Integrity classes are defined by plant functional group composition (proportion of shrub and annual grass). Visual distinction between these functional groups makes them readily understood by nonspecialists. Photo credits Dawn M. Lawson

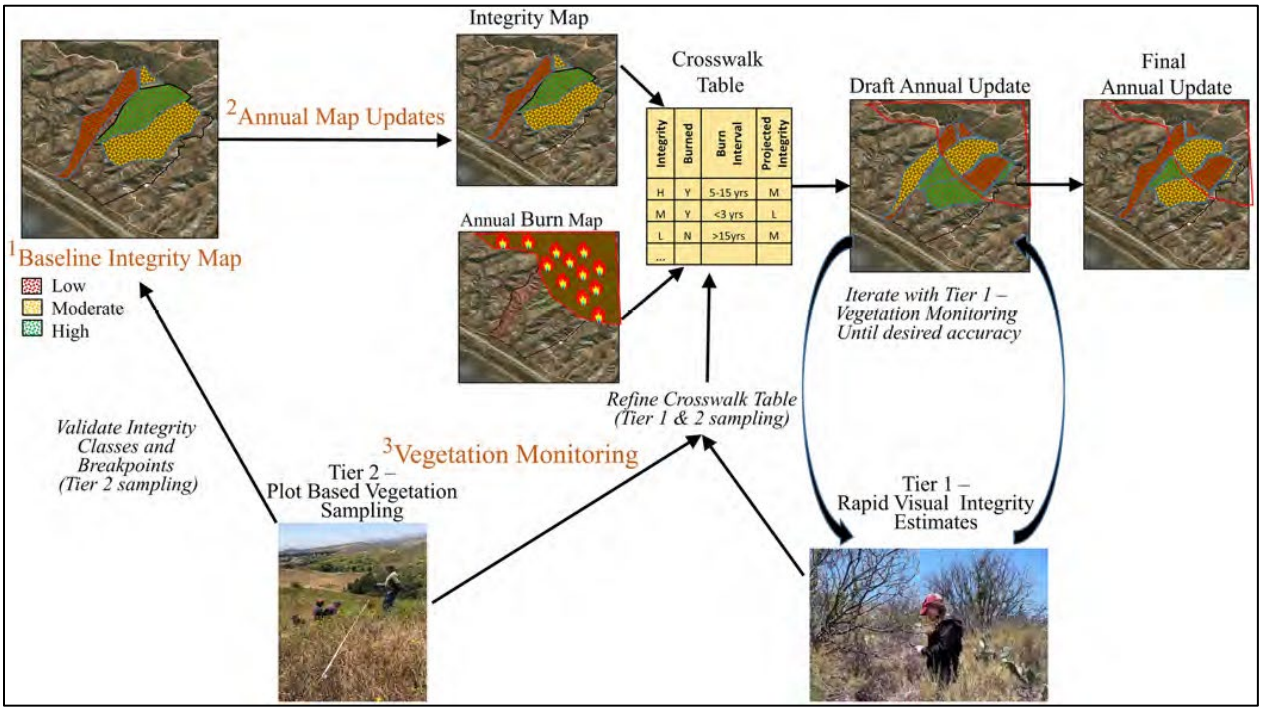

FIGURE 2 The monitoring framework includes baseline integrity mapping, map updates, and vegetation monitoring. The process starts with the baseline integrity map, then annual or periodic updates use spatial fire data and a cross-walk table capturing what is known about the effect of fire on integrity to produce a draft update. (Ultimately information on other drivers will also be included.) The draft is validated and refined using Tier 1 rapid assessments. Tier 2 sampling is used both to refine the cross-walk table and to validate integrity classes and breakpoints. Photo credits Dawn M. Lawson