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4. Using criteria matrices to set priorities

Several methods for setting priorities have been developed that use various criteria. The most widely applied systems are those developed by The Nature Conservancy and the U.S. Fish and Wildlife Service (Figure 3.1). These systems combine criteria of rarity and threat. Because each situation is different, however, a better approach allows you to design your own system, identifying criteria that are important to the specific situation. A matrix approach can be used when a large number of criteria are to be incorporated, and you wish to weight each criterion individually. In the example given in Figure 3.3, biological criteria are given higher emphasis than management criteria. Figure 3.4 and Figure 3.5 provide blank work sheets for comparing species and populations.

C. Assess Available and Needed Resources

Management must be committed to the monitoring project and willing to expend the resources required for a successful project. Priorities and allocation of time and dollars are the responsibility of management. Managers are also the ones who will make decisions based on the monitoring. Be wary of your inclination

		BIOLOGICAL CRITERIA						MANAGEMENT CRITERIA					Total
		rarity	taxonomic status	sensitivity	known decline	extent of threats	immediacy of threats	existing conflict	monitoring difficulty*	availability of management actions	recovery potential	public interest	potential for crisis	
SPECIES	WEIGHTING	4	2	5	5	5	5	2	1	5	5	1	1	
species A (a rare variety)	rating for species	3	1	3	3	2	3	1	3	1	2	1	1	24
	rating x weight	12	2	15	15	10	15	2	3	5	10	1	1	91
species B	rating for species	2	2	1	3	3	3	3	1	3	3	3	3	30
	rating x weight	8	4	5	15	15	15	6	1	15	15	3	3	105
species C	rating for species	1	3	3	2	2	1	1	3	3	3	1	3	26
	rating x weight	4	6	15	10	10	5	2	3	15	15	1	3	89
species D	rating for species	1	1	1	2	1	1	1	3	1	1	1	1	15
	rating x weight	4	2	5	10	5	5	2	3	5	5	1	1	48
species E	rating for species	3	1	3	3	3	3	1	1	3	3	1	1	26
	rating x weight	12	2	15	15	15	15	2	1	15	15	1	1	109

* note that all weights range from 1-5 and species ratings range from 1-3, with the lowest number having the lowest importance. For monitoring difficulty, a low number means it is a difficult species to monitor (the more difficult species receive a lower importance for monitoring).

FIGURE 3.3. Completed matrix for setting priorities among five species.

to do self-driven monitoring, where you choose to devote what resources you can toward your pet monitoring project. Although the monitoring may be implemented as long as you're there to do it, if you leave, your pet project may die. A monitoring project needs other advocates besides the specialist(s), preferably in management.

Once management is supportive, you should consider three limiting factors when designing a monitoring project: (1) the skill level of those planning and implementing the project; (2) the equipment available; and (3) the time and money available for field work and analysis.

The project may require special skills at the planning level. Depending on the complexity of the project and your knowledge, you may need a statistician or someone with expertise in sampling design. State offices and regional offices may have people who can help. You may be able to solicit or contract advice from specialists associated with universities, private consulting firms, and conservation groups. Rare plant experts associated with State agencies and those with the U.S. Fish and Wildlife Service may also provide advice. Use as many resource people as possible for review.

Special skills may also be needed at the implementation level. Field work that will be completed mostly by summer technicians may need to be designed differently than that done by experienced botanists.

		BIOLOGICAL CRITERIA						MANAGEMENT CRITERIA						
		rarity	taxonomic status	sensitivity	known decline	extent of threats	immediacy of threats	existing conflict	monitoring difficulty	availability of management actions	recovery potential	public interest	potential for crisis	Total
SPECIES	WEIGHTING													
	rating for species													
	rating × weight													
	rating for species													
	rating × weight													
	rating for species													
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FIGURE 3.4. Blank matrix worksheet for setting priorities among species.