

## Standard NRCA Report Outline – Annotated Version

The executive summary targets non-technical audiences. The main body of the report targets park resource managers or others at an intermediate level of technical expertise (i.e., well grounded in natural resource concepts and issues but not presumed to be an expert in any particular natural resource discipline). Detailed or technical documentation related to study data and methods should go into report appendices and/or GIS metadata files.

The outline identifies expected topics within each major section (2.1, 2.2, 2.3, 3.1, etc.) and recommends presentation order for those topics. Authors can re-arrange presentation order for topics within a major section if they feel it improves report flow and readability. They can also introduce new topics into the outline, provided they are relevant to study objectives and inserted at appropriate locations. Authors need approval from the NRCA program leads at regional and national office levels before making other types of changes to report format or content.

### Executive Summary

Key findings are summarized here. A well prepared summary can be as short as 2-3 pp.

### Chapter 1 NRCA Background Information

See boilerplate language provided by the national NRCA Program office (3 pp.)

### Chapter 2 Introduction and Resource Setting

This chapter introduces park setting and important park natural resources. Documentation already exists for most parks with respect to park significance and purpose, general resource setting, resource descriptions, and resource condition threats and stressors of particular concern to the park. **NPS can help authors gather this information so it can be summarized here in condensed form.** General resource information and location maps developed by this study can also go here. Key study findings regarding resource condition status, including resource condition threats and stressors, are not reported here. They belong in chapters 4-5.

#### 2.1 Introduction (*estimated length = 3-6 pp*)

##### 2.1.1 Enabling Legislation

- ◇ when/why established (brief, mostly excerpts from enabling legislation)

##### 2.1.2 Geographic Setting

- ◇ park size and location (descriptions + maps)
- ◇ general park/regional characteristics that might include: physiographic setting, population and land use patterns, socioeconomic conditions, etc.

##### 2.1.3 Visitation Statistics

- ◇ recent visitation levels and trends

- ◇ (optional) breakdown of visitor use data to show most-common visitor activities, most-visited areas of the park, etc.
- 2.2 Natural Resources
- 2.2.1 Ecological Units and Watersheds (*can combine 2.2.1 and 2.2.2*)
- ◇ introduction to park ecosystems or habitat types (including maps)
  - ◇ introduction to park and adjacent area watersheds (including maps)
  - ◇ (optional) additional landscape or regional scale natural resource information
- 2.2.2 Resource Descriptions
- ◇ “area by area” or “resource by resource” descriptions for important park natural resources, including identification of T&E species and other rare, sensitive, or significant natural resources
- 2.2.3 Resource Issues Overview
- ◇ (optional) past activities or conditions that influence current park conditions
  - ◇ introduction to resource condition threats or stressors identified as being “of concern” in terms of potential risk/harm to important park resources
- 2.3 Resource Stewardship (*brief summary; estimated length = 2-4 pp*)
- This section summarizes natural resources and indicators already identified as important: a) from park-level planning or management processes and decision documents; and b) from the perspective of the NPS I&M Program and other park or NPS science support programs. Taken together, this helps frame a longer list of potential study resources and indicators. It can also suggest reference conditions and values to use. **Ideally, NPS should assemble this information prior to the study and provide it to the study investigators before the project kickoff meeting. Most of this information can be succinctly summarized and communicated via tables.**
- 2.3.1 Management Directives and Planning Guidance
- ◇ if already determined by park planners/managers: what are the park’s *fundamental* and *other important* natural resources and related values?
  - ◇ if already determined by park planners/managers: what are the *desired conditions* for those resources and values, what are the measurement indicators, what are the (short or longer term) management target values?
  - ◇ other formal management directives or planning guidance: special area designations within the park (e.g. wilderness areas or wild and scenic rivers), natural resource management objectives in park management plans, etc.
- 2.3.2 Status of Supporting Science
- ◇ natural resources and indicators (park vital signs, others) already identified as high priority for long term monitoring or other purposes
  - ◇ if already identified: science-based reference conditions and values for those resources and indicators
  - ◇ status for implementing vital signs monitoring, inventory datasets, and other keystone science support programs or projects at the park

## Chapter 3 Study Scoping and Design

This chapter documents the study scoping process. It also describes study design outcomes. Input from parks and other NPS subject matter experts is essential to selecting a good subset of park resources and indicators to focus on, to help identify appropriate data sets and analytical approaches, to determine the indicator framework(s) that will be used in the study, and to decide on the park areas to use for a more holistic “roll up” and summary of overall conditions.

### 3.1 Preliminary Scoping

- ◇ documents the meetings or other processes used to obtain NPS input during this phase; summarizes important points and outcomes here, with detailed descriptions and supporting documentation placed into an appendix (meeting attendee lists, potential list of study indicators, likely data sources, subject matter experts, reference conditions, etc.)
- ◇ describes other important steps or activities related to this study phase

### 3.2 Study Design

#### 3.2.1 Indicator Framework, Focal Study Resources and Indicators

- ◇ introduces the hierarchical indicator framework(s) to be used in the study
- ◇ using the framework, identifies the natural resources, indicators (and measures, if multiple measures per indicator) that will be emphasized in this study

#### 3.2.2 Reporting Areas

- ◇ (required) indicate whether ecosystem/habitat units or watersheds (at what scale?) will be used to summarize overall study findings
- ◇ (optional) additional areas used for summary purposes: e.g., front country vs. backcountry, wilderness areas, formal or informal management units

#### 3.2.3 General Approach and Methods

- ◇ summarizes the general approach and types of methods used to evaluate and report condition findings in chapters 4-5

## Chapter 4 Natural Resource Conditions

This chapter emphasizes current condition reporting for the subset of important park natural resources and indicators emphasized in this study. If the study design includes a structured logic model, to roll up and report explicit condition scores by broader resource categories or for park areas, scores at those levels can also go into this chapter. **This chapter is structured to maximize credibility and defensibility of study findings.** The assumption is that the study framework will drive the reporting scheme used in this chapter (see below as example template). However, authors can propose alternative ways to organize and report resource and indicator level condition findings if they feel it improves report flow and readability.

### 4.1 Reporting Category 1

#### 4.1.1 Resource or Indicator A (variable length; estimated at 2-8 pp per resource/indicator)

- ◇ a “thumbnail” condition statement or score: a succinct statement or color coded icon to indicate current condition (and trend, if evaluated), a simple data graphic (map or chart) could be placed here also

**Note: the following information items need to be explicitly addressed through some combination of narrative descriptions and summary tables**

**Description:**

- ◇ relevance and context (what it means or tells us and why it is important to include in this study – ideally, 1 or 2 short paragraphs)
- ◇ if it includes multiple measures, identify the measures that were evaluated and reported together

**Data and Methods (Including Reference Conditions/Values Used):**

- ◇ what data sets were used to evaluate it, how were the data sets adjusted or processed as lead-in to analysis; if it involved extensive or highly technical

descriptions, refer the reader to an appendix or GIS metadata file for supporting details

- ◇ how were the data evaluated and analyzed to determine current conditions (and trend); as before, refer the reader to an appendix or GIS metadata file for extensive or highly technical descriptions

*For Reference Conditions/Values:*

- ◇ what type(s) of reference conditions and values were used, why are they logical and appropriate to use here
- ◇ what literature or data sources are they taken from; if they originate with the study investigators, how were they developed

**Condition and Trend (Including Data Gaps and Level of Confidence):**

- ◇ narrative to report key findings re: current conditions and trend ( if evaluated), include maps and succinct data graphs/figures where possible
- ◇ identify critical data needs/data gaps
- ◇ as appropriate, identify important threat and stressor factors

*For Level of Confidence:*

- ◇ what is the overall confidence assigned to the condition findings for this indicator – can be stated in qualitative terms
- ◇ (possible discussion item) important assumptions made with respect to the underlying data sets or as part of the analysis
- ◇ (possible discussion item) sources of uncertainty or caveats to use

**Sources of Expertise:**

- ◇ offices, programs, or individuals that had a primary role in providing expertise and interpretations to determine current condition (and trend) for this indicator

**Literature Cited:**

- ◇ formal citations for literature or datasets used for this indicator

4.1.2 Resource or Indicator B, C... (*address the same information items for additional resources/indicators in this reporting category*)

4.2 Reporting Category 2 (*repeat above scheme for other framework categories*)

## **Chapter 5 Discussion**

This chapter provides a “bigger picture” summary of condition findings by park areas and topics of interest to park managers. Taken together, what do results across the varied study resources and indicators suggest in more holistic or aggregate terms? **This chapter is less about delivering rigorous scientific findings, more about providing useful interpretations and suggestions to park managers.** It can help answer the “so what” question about resource and indicator level findings as reported in chapter 4. It can also help park managers think about logical next steps to take as part of ongoing efforts to protect and manage important park natural resources. Open-format chapter for now, waiting for good examples:

- ◇ For the park as a whole and/or park areas identified in chapter 3: summary of overall conditions, possible threat and stressor concerns, pressing scientific questions or study needs
- ◇ (optional) Based on the resources/indicators evaluated, summary of overall conditions (e.g., what we know, what we don’t know) relative to broader topics of interest to managers
- ◇ (optional) Suggestions to park managers: logical next-step activities that could be considered as a means to maintain or improve conditions for important park natural resources

**Appendices: Technical Documentation, Other Supporting Details** (*as needed*)