

Northern shoveler
©Britta Heise

Appendix L

The Ecology Work Group and the State-and-Transition Model



Appendix A
Appropriate Use Findings

Appendix B
Compatibility Determinations

Appendix C
Implementation

Appendix D
Wilderness Review

Appendix E
BIDEH

Appendix F
Statement of Compliance

Appendix G
Integrated Pest Management

Appendix H
Glossary

Appendix I
Contributors

Appendix J
Public Involvement

Appendix K
Wet Meadow Treatment

**Appendix L
Ecology Working Group**

Appendix M
Climate Change

Appendix N
Common & Scientific Names

Appendix O
Sustainability

Appendix P
Hunting Plan

Appendix Q
Effects of Prescribed Fire

Appendix R
NWR Visitor Survey

Appendix S
Improving Aquatic Health

L.1 Adaptive Management and the State and Transition Model

Habitat management within the Malheur Refuge comprehensive conservation plan (CCP) will rest on an inductive ecological framework that uses a broad spectrum of relevant research from similar systems. This will enable the Refuge to form premises that assist in developing reasonable management strategies to meet various identified habitat objectives. The foundation from which habitat management approaches will arise within this CCP is “adaptive management.”

The U.S. Department of the Interior recognizes that this concept “is much more than simply tracking and changing management direction,” and that it “focuses on learning and adapting, through partnerships of managers, scientists, and other stakeholders who learn together how to create and maintain sustainable resource systems” (Williams et al. 2007).

The Malheur State and Transition Model (STM) will play a vital role in achieving this. The STM is a framework that is being developed by the Service with the assistance of ecologists from various State and Federal agencies and non-government organizations. As illustrated conceptually in Figure L-1, STM will:

- (1) describe various habitat types and associated plant communities;
- (2) discuss the conditions that likely cause transitions¹ to other plant assemblages;
- (3) identify existing information gaps in the scientific knowledge base that need to be addressed in further understanding the functionality of these habitat types and possible strategies for obtaining this critical information;
- (4) develop management strategies by combining individual tools/treatments to meet the objectives specified in this plan;
- (5) analyze the success of initiated management strategies; and
- (6) modify management over time to meet CCP objectives.

The benefits of the STM concept for Malheur Refuge expand beyond greater ecological understanding of Refuge habitat. It also provides transparency, heightened and continued interaction with partnering agencies/organizations (i.e., Oregon State University, U.S. Department of Agriculture’s Agricultural Research Service, Oregon Heritage Program, Ducks Unlimited, Wetlands Conservancy, etc.), and accountability for continued monitoring of management actions. The STM is a living model that is continually transformed as new information is gleaned over time, and because of this, it introduces an amplified dependence on actualized adaptive management. It also provides us with a framework for organizing our results and reporting them to the interested public.

L.2 The Ecology Work Group

As mentioned above, the STM is developed by ecologists and fish/wildlife biologists from the Service and partnering entities. It is a product of the Service, created in cooperation with the Ecology Work Group, which was created during the development of the 2012 Malheur CCP. This group is designed to assist Refuge staff in carrying out adaptive management by providing experience, vital

¹ These transitions are called thresholds when severe climatic or management stresses cause the composition of species within a particular assemblage to change radically, and they are often difficult to reverse without a lot of external input (labor and funding).

connections to best available science, and increased opportunities for acquiring the resources needed in pursuing dynamic management of Refuge habitats. The Ecology Group will meet prior to each field season to discuss data gathered in previous seasons and assess the effectiveness of current strategies. It will assist the Service in determining if objectives are being met or, in instances where long-term tenacity is required, if existing management is moving target habitats toward desired conditions over time. The Ecology Group will also analyze data and discuss management successes and challenges at the conclusion of each field season and consider if alterations to the STM need to be made as more information becomes available.

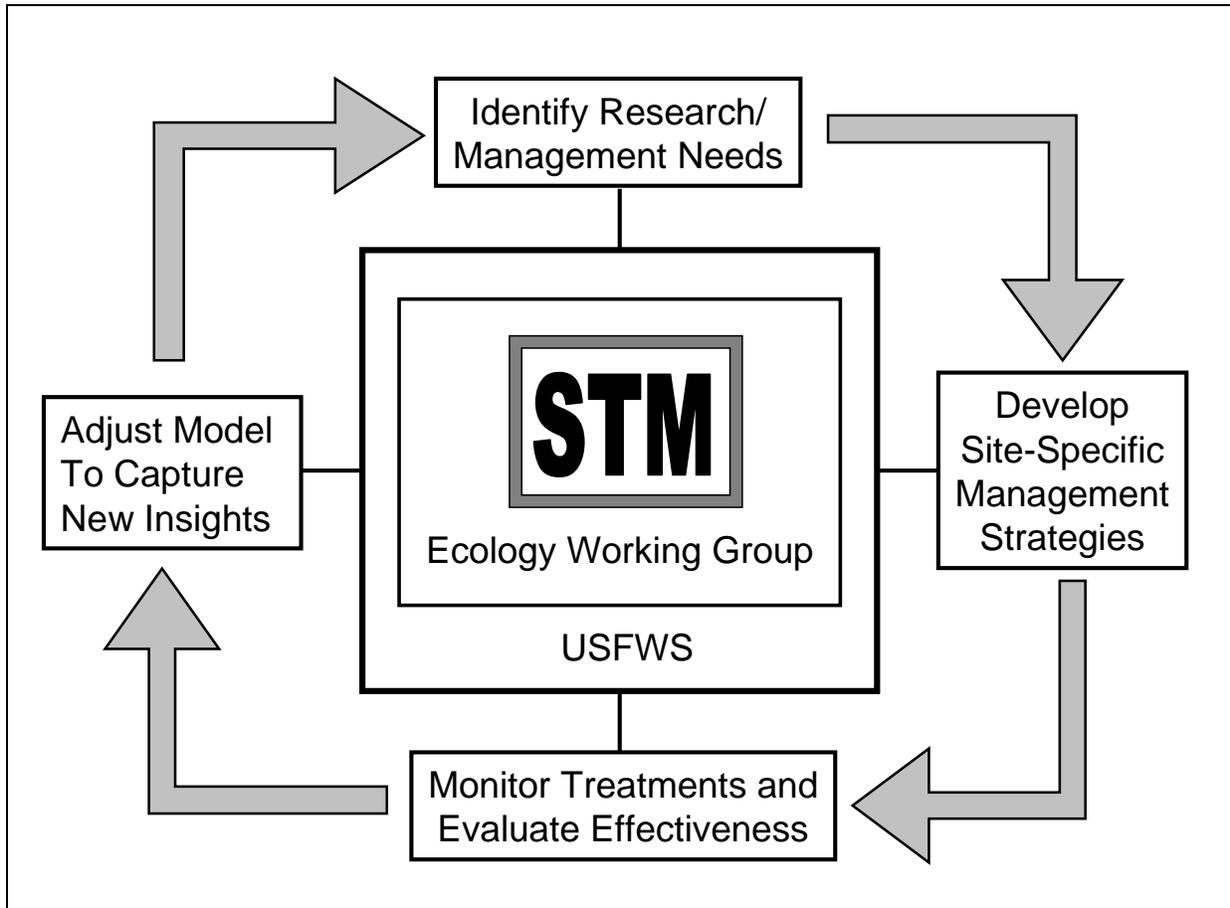


Figure L-1. A conceptual diagram of the State and Transition Model as an adaptive management tool.

L.3 References

Williams B.K., R.C. Szaro, and C.D. Shapiro. 2007. Adaptive management: the U.S. Department of Interior technical guide. Adaptive Management Working Group, U.S. Department of the Interior. Washington D.C.