Table of Contents

VISION STATEMENT ..... *i*

CHAPTER 1: INTRODUCTION **1-1**

1.1 Purpose and Need for the CCP **1-1**

1.2 Refuge Overview: History of Establishment, Acquisition, and Management **1-4**
1.2.1 Refuge Establishing Authorities and Purpose(s) 1-4
1.2.2 History of the Refuge 1-5
1.2.3 Ozark Plateau NWR Management Units 1-8
Table 1-1. Ozark Plateau National Wildlife Refuge Area (Acres) by County and Tract Type *1-9*
Figure 1-1. Map of Ozark Plateau NWR Management Units and Acquisition Boundary. *1-10*

1.3 Planning Context **1-15**
1.3.1 The U.S. Fish and Wildlife Service 1-15
Figure 1-2. National Wildlife Refuge System *1-17*
1.3.2.1 Legal and Policy Guidance 1-18
1.3.3 Landscape Level Context 1-20
1.3.3.1 Climate Change 1-20
1.3.3.2 National Plans and Initiatives 1-22
1.3.3.3 Regional Plans and Initiatives 1-23
1.3.3.4 State and Local Plans and Initiatives 1-24
Figure 1-3. Oklahoma Comprehensive Wildlife Conservation Strategy Regions *1-25*
1.3.3.5 Other Refuge Plans 1-26
1.3.3.6 Species-specific Plans and Initiatives 1-26
1.3.3.7 Coordination with the State of Oklahoma, Tribal Nations, and Other Entities 1-27

CHAPTER 2: THE PLANNING PROCESS **2-1**
Figure 2-1. The Comprehensive Conservation Planning Process *2-1*

2.1 Preplanning **2-2**

2.2 Initiate Public Involvement and Scoping **2-2**
Table 2-1. Location, Attendance, and Dates of Public Meetings *2-2*

2.3 Determine Issues **2-3**
Table 2-2. Issues identified and discussed during scoping *2-3*
2.3.1 Landscape-level Issues 2-5
Figure 2-2. Cave management coordination opportunities at the landscape-level *2-10*
2.3.2 Habitat Management Issues 2-11
2.3.3 Wildlife Management Issues 2-13
2.3.4 Public Use Opportunities Issues 2-19
Table 2-3. Refuge Boundary Assessment *2-23*
2.3.5 Cultural Resources Issues 2-23

2.3.6 Facilities & Infrastructure Issues 2-24
2.3.7 Refuge Administration Issues 2-26

2.4 Develop and Analyze Alternatives 2-26

2.5 Prepare Draft Plan and EA 2-26

2.6 Prepare and Adopt Final Plan 2-26

2.7 Implement Plan, Monitor, and Evaluate 2-27

2.8 Review and Revise Plan 2-27

CHAPTER 3: REFUGE RESOURCES & CURRENT MANAGEMENT 3-1

3.1 Landscape Setting 3-1
3.1.1 Strategic Habitat Conservation and Landscape Conservation Cooperative 3-2
Figure 3-1. Gulf Coastal Plains & Ozarks LCC 3-3
3.1.2 Ecoregion Setting 3-4
Figure 3-2. Ozarks Ecoregion (The Nature Conservancy, 2003). 3-5
3.1.2.1 Terrestrial Description 3-5
3.1.2.2 Aquatic Description 3-6
Figure 3-3. Ozark Aquifer (Credit: Unknown) 3-6
3.1.3 Protected Areas in the Ozarks Ecoregion 3-7
Figure 3-4. Protected Areas in the Ozarks. (U.S. Forest Service, 1999). 3-8
Figure 3-5. State Tribal and Federal Lands. 3-9
3.1.4 Migration Corridors 3-10
3.1.5 Refuge Location 3-11
3.1.6 Surrounding Land Uses 3-11
3.1.7 Flyway 3-12

3.2 Physical Environment 3-12
3.2.1 Climate 3-12
Figure 3-6. Ozark Plateau NWR Average Monthly Temperatures (Fahrenheit) 3-13
Figure 3-7. Ozark Plateau NWR 30-year Average Monthly Precipitation (inches) 3-14
3.2.2 Air Quality 3-14
3.2.3 Water Resources 3-15
3.2.4 Geology and Soils 3-18
3.2.5 Oil and Gas Occurrences and Potential 3-20

3.3 Biological Environment 3-20
3.3.1 Habitat Types 3-20
3.3.1.1 Terrestrial Classes 3-20
Table 3-1. Terrestrial Conservation Landscapes on Ozark Plateau NWR Units (ODWC, 2005) 3-21
3.3.1.2 Aquatic Classes 3-23
Table 3-2. Aquatic Conservation Landscapes on Ozark Plateau NWR Units (ODWC, 2005) 3-24
3.3.1.3 Natural Disturbance Processes 3-26
3.3.1.4 Historical Habitat Description 3-26
3.3.1.5 Estimated Future Habitat Conditions due to Climate Change 3-27

3.3.2 Wildlife and Plants 3-27
3.3.2.1 Priority Species 3-29
Figure 3-8. Population estimates of the Ozark big-eared bat by year since listing as endangered in 1979.. 3-32
Figure 3-9. Overall Ozark big-eared bat population estimates based on summer counts from known maternity sites 3-33
Table 3-3. Oklahoma State Species of Concern occurring on the Refuge 3-36
Table 3-4. Central Hardwoods Bird Conservation Region Priority Bird Species (2012) 3-37
3.3.2.2 Representative/Focal Species 3-38
Table 3-5. Representative Species of Ozark Plateau NWR and respective federal and state status. 3-38

3.4 Socioeconomic Environment 3-40
3.4.1 Population 3-40
Table 3-6. Ozark Plateau NWR Acquisition Area Population, 2000-2008. (Bureau of the Census) 3-41
3.4.2 Economy 3-41
3.4.2.1 Regional Economic Profile 3-41
3.4.2.2 Economic Significance of the Refuge 3-41

3.5 Archeological, Paleontological, Cultural, and Historical Resources 3-42
3.5.1 Archeological and Paleontological Resources 3-42
3.5.2 Cultural Resources 3-42
3.5.3 Historical Resources 3-43

3.6 Current Management & Administration 3-44
3.6.1 Administration 3-44
3.6.1.1 Funding & Staffing 3-44
3.6.1.2 Administrative Facilities and Infrastructure 3-45
3.6.1.3 Oil and Gas Operations/Management 3-47
3.6.1.4 Partnerships 3-47
3.6.1.5 Memorandums of Understanding & Agreements 3-48
3.6.1.6 Law Enforcement and Resource Protection 3-48
3.6.1.7 Safety 3-49
3.6.2 Current Landscape-level Management 3-49
3.6.2.1 Ozark Habitat Loss & Fragmentation 3-49
3.6.2.2 Climate Change 3-49
Table 3-7. Species Surveys Completed on Ozark Plateau NWR until 2012. 3-50
3.6.2.3 Surface and Ground Water Quality & Quantity 3-51
3.6.2.4 White-nose Syndrome (WNS) 3-52
3.6.2.5 Migration Corridors 3-53
3.6.3 Current Habitat Management 3-53
3.6.3.1 Degradation of Cave, Stream, and Forest Habitat 3-53
3.6.3.2 Lack of Detailed, Scientific Cave Habitat Data 3-54
3.6.3.3 Invasive Flora 3-54
3.6.3.4 Fire Management 3-55
3.6.4 Current Wildlife Management 3-56
3.6.4.1 Threatened and Endangered (T&E) Species and Species of Concern 3-56
3.6.4.2 Migratory and Resident Bird Species 3-57
3.6.4.3 Resident Non-T&E Species 3-57
3.6.4.4 Invasive Fauna Species and Pest Management 3-58
3.6.5 Current Public Use Opportunities 3-58

3.6.5.1 Hunting 3-58
3.6.5.2 Environmental Education 3-58
3.6.5.3 Interpretation 3-59
3.6.5.4 Wildlife Observation & Photography 3-60
3.6.5.5 Wood Harvesting 3-60
3.6.5.6 Public Outreach 3-60
3.6.6 Current Cultural Resource Management 3-60
3.6.6.1 Historical Sites 3-60
3.6.6.2 Archeological and Paleontological Sites 3-60

CHAPTER 4: MANAGEMENT DIRECTION 4-1

Goals, Objectives, and Strategies Overview 4-1

4.1 Goal 1: Landscape-level Context 4-3
4.1.1 Objective 1: Continue Building Landscape-Level Partnerships. 4-3
4.1.2 Objective 2: Coordinate Across Service Regions to Better Manage Federally Listed Ozark Cave Species on a Landscape-Level. 4-5
4.1.3 Objective 3: Acquire Lands within Approved Acquisition Area. 4-8
4.1.4 Objective 4: Implement Climate Change Monitoring & Mitigation Program. 4-9
4.1.5 Objective 5: Implement Water Quantity & Quality Monitoring & Management Program. 4-12
4.1.6 Objective 6: Assist with White-nose Syndrome Research, Monitoring, Prevention, and Recovery. 4-14
4.1.7 Objective 7: Identify Migration Routes/Habitat Corridors. 4-17

4.2 Goal 2: Wildlife Habitat & Population Management 4-18
4.2.1 Objective 1: Protect, Enhance, and/or Restore Forested Habitat. 4-18
4.2.2 Objective 2: Protect, Enhance, and/or Restore Aquatic Habitat. 4-22
4.2.3 Objective 3: Provide Undisturbed, Safe, and Protected Cave Habitat. 4-25
4.2.4 Objective 4: Locate Additional Caves. 4-28
4.2.5 Objective 5: Delineate Recharge Area of Cavefish and Crayfish Caves. 4-29
4.2.6 Objective 6: Inventory & Monitor to Advance Scientific Knowledge Regarding Federally Listed Cave Species and Species of Concern. 4-30
4.2.7 Objective 7: Inventory & Monitor to Advance Scientific Knowledge Regarding Migratory and Resident Non-T&E Species. 4-33
4.2.8 Objective 8: Inventory & Monitor Migratory and Resident Bird Species Utilizing the Refuge and Surrounding Landscape. 4-35
4.2.9 Objective 9: Map, Monitor, Research, and Implement Adaptive Management to Assess and Control Invasive Non-native Flora. 4-37
4.2.10 Objective 10: Map, Monitor, Research, and Implement Adaptive Management to Assess and Control Invasive Non-native Fauna. 4-39

4.3 Goal 3: Visitor Services 4-41
4.3.1 Objective 1: Establish a Friends Group and Increase Volunteers. 4-41
4.3.2 Objective 2: Increase Public Awareness via Outreach. 4-43
4.3.3 Objective 3: Collaborate to Increase Program Opportunities for Environmental Education. 4-45
4.3.4 Objective 4: Collaborate to Promote and Conduct Interpretation Programs. 4-48
4.3.5 Objective 5: Promote Opportunities for Wildlife Observation & Photography. 4-50
4.3.6 Objective 6: Collaborate with ODWC to Provide Hunting Opportunities. 4-51

4.3.7 Objective 7: Create More Hiking/Nature-viewing Opportunities. 4-52
4.3.8 Objective 8: Design and Display Refuge Signs. 4-53
4.3.9 Objective 9: Survey and Mark Refuge Boundaries. 4-54
Table 4-1. Refuge Boundary Assessment (2012) *4-55*

4.4 Goal 4. Refuge Infrastructure & Administration 4-55
4.4.1 Objective 1: Ensure Workforce and Volunteer Training and Safety. 4-55
4.4.2 Objective 2: Protect and Survey Historical, Archeological, and Paleontological Sites. 4-57
4.4.3 Objective 3: Establish a Refuge Headquarters and Visitor/Education Center Site. 4-58
4.4.4 Objective 4: Renovate and Repair the MMLERC. 4-59
4.4.5 Objective 5: Improve and Widen Access Roads and Parking Areas. 4-61
4.4.6 Objective 6: Construct Building Facilities Associated with Maintenance. 4-62
4.4.7 Objective 7: Provide Housing for Refuge Staff, Interns, Volunteers, Researchers, and Educators. 4-62

CHAPTER 5: PLAN IMPLEMENTATION AND MONITORING 5-1

5.1 Partnerships 5-2
Table 5-1. Ozark Plateau NWR Partners *5-4*

5.2 Memorandums of Understanding and Other Agreements 5-5

5.3 Appropriate Refuge Uses and Compatibility 5-6
5.3.1 Appropriate Refuge Uses 5-6
5.3.2 Compatibility 5-6

5.4 Intra-Service Section 7 (Endangered Species Act Consultation) 5-7

5.5 Funding & Staffing 5-7

5.6 Refuge Projects 5-9
Table 5-2. Refuge projects, staffing, and funding required for implementation. *5-10*

5.7 Step-Down Management Plans 5-31
5.7.1 Current Step-Down Plans 5-31
5.7.2 Future Step-Down Plans 5-31
5.7.3 Other Frequently Referenced Plans 5-31

5.8 Monitoring and Evaluation of the Plan 5-32
Table 5-3. 2013-2028 Plan Monitoring & Evaluation Table. *5-33*

5.9 Plan Amendment and Revision 5-55

APPENDIX A: ENVIRONMENTAL ASSESSMENT (EA) A-1

APPENDIX B: COMPATIBILITY DETERMINATIONS B-1

APPENDIX C: SPECIES LIST C-1

Table C-1. Amphibians and Reptiles Survey of Ozark Plateau NWR (2001). C-1
Table C-2. Limestone Cave Species of Greatest Conservation Need (OWDC, 2005) C-5
Table C-3. White Oak/Hickory Mesic Forest Species of Greatest Conservation Need (ODWC, 2005). C-6
Table C-4. Shortleaf Pine-Oak-Hickory Woodlands Species of Greatest Conservation Need (ODWC, 2005) C-7
Table C-5. Post Oak/Blackjack Oak-Hickory Woodlands and Forests Species of Greatest Conservation Need (ODWC, 2005). C-8
Table C-6. Herbaceous Wetlands Species of Greatest Conservation Need (ODWC, 2005). C-9
Table C-7. Prairie Species of Greatest Conservation Need (ODWC, 2005). C-10
Table C-8. Spring Species of Greatest Conservation Need (ODWC, 2005). C-11
Table C-9. Gravel-bottom Streams and Associated Riparian Forests Species of Greatest Conservation Need (ODWC, 2005). C-12
Table C-10. Small River Species of Greatest Conservation Need (ODWC, 2005). C-13
Table C-11. Large River Species of Greatest Conservation Need (ODWC, 2005). C-15

APPENDIX D: VEGETATIVE ALLIANCES D-1

Table D-1. Plants Occurring on Ozark Plateau NWR (Survey by Dr. Ron Tyrl of OSU) (2001-2008). D-1

APPENDIX E: WILDERNESS REVIEW E-1

APPENDIX F: SECTION 7 CONSULTATION F-1

APPENDIX G: KEY LEGISLATION & SERVICE POLICIES G-1

APPENDIX H: GLOSSARY H-1

ABBREVIATIONS AND ACRONYMS H-11

APPENDIX I: REFERENCES I-1

APPENDIX J: LIST OF PREPARERS J-1

APPENDIX K: RESPONSE TO PUBLIC COMMENTS K-1