



## 2015 New England Cottontail Conservation Performance Report

Approved: February 29, 2016



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New England Cottontail  
2015 Conservation Performance Report

## Executive Summary

### Overview:

The purpose of this report is to provide a brief annual update to the New England cottontail Executive Committee (ExCom) for 2015. The Technical Committee (TechCom) is tracking detailed measures of performance for 80 strategic objectives in the Conservation Strategy on an annual basis. The status of all objectives was reviewed by the TechCom in January, 2016. To complete adaptive management, the committee evaluated performance for each objective, identified uncertainties underlying performance, prescribed implementation directions (charges) for 2016, and developed recommended adaptations to the strategy. The full evaluation results are listed in detail in the accompanying spreadsheet and are summarized in this report on the following pages.

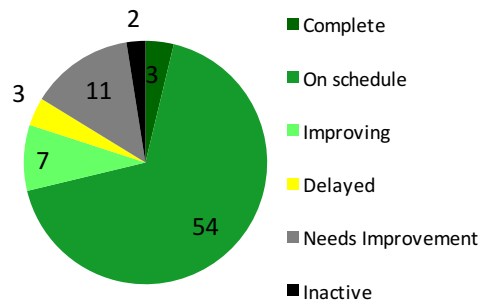
This report is organized in 9 sections, each representing a strategic category, and highlighting the key achievements, uncertainties, implementation directions, and strategy adaptations developed by the TechCom. The input data were provided by the TechCom and by Working Lands for Wildlife. The reported figures were compiled and estimated in the context of changing status and varied partner approaches to project tracking; therefore, they should be interpreted only as estimates.

### 2015 Highlights:

- In 2015, in consideration of the species status and ongoing conservation efforts, the U.S. Fish and Wildlife Service (FWS) decided listing is not warranted for the New England cottontail (NEC).
- The 2030 FWS goal for habitat restoration is 27,000 acres. In total, roughly 12,282 acres of habitat management and restoration have been planned or implemented. While the status of projects is constantly changing, we estimate over 40% of the acres reported have been fully implemented. In addition, we estimate over 10,000 acres of naturally self-sustaining habitat.
- Although yield in captivity needs improvement, in 2 of 3 augmented wild populations, released animals are reproducing.
- A 9-acre experimental breeding pen is being planned for Great Bay National Wildlife Refuge.
- Resolving management uncertainties via ongoing studies is an urgently need; specifically, site-level population and vegetation responses need to be confirmed.
- The approach to confirm a range-wide response is still being tested, statistical consultation is needed to validate the occupancy monitoring protocol.
- The Land Protection Work Group documented roughly 8,350 parcel acres in transaction or secured in active NEC focus areas during 2012-2015.
- According to 2014 Focus Area Status Screening Templates (FASST), 15 focus areas meet or exceed their estimated population goals, totaling 10,500 rabbits. In 6 additional focus areas, population levels are approaching their goals. With ongoing efforts, this combination of 21 focus areas is expected to exceed the 13,500 goal and meet the population configuration requirements established by the FWS. No changes were reported in 2015, and pursuant to the 2015 listing decision, FWS will no longer complete an annual assessment. Improved population estimates are needed.

*The Executive summary is continued on the following page.*

Status of all Strategic Objectives



**Figure 1.** The pie chart shown above represents a summary of the status of 80 objectives. A similar chart is shown on the following pages for each of the 9 strategic categories. The status of individual objectives is reported in the accompanying spreadsheet tables.

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**Executive Summary** *continued*

**Key Outstanding Uncertainties:** *(More uncertainties are described in the following sections)*

1. The developing regional occupancy monitoring protocol has not yet adequately demonstrated power to detect long-term trends.
2. Studies measuring vegetation and population responses have not yet affirmed prescribed management is working.
3. Yield from captive breeding is low, but expanded zoo capacity and the Patience Island colony are expected to bolster yield in 2016.

**Priority Implementation Directions:** *(Partial list, the full list is provided at the end of the report)*

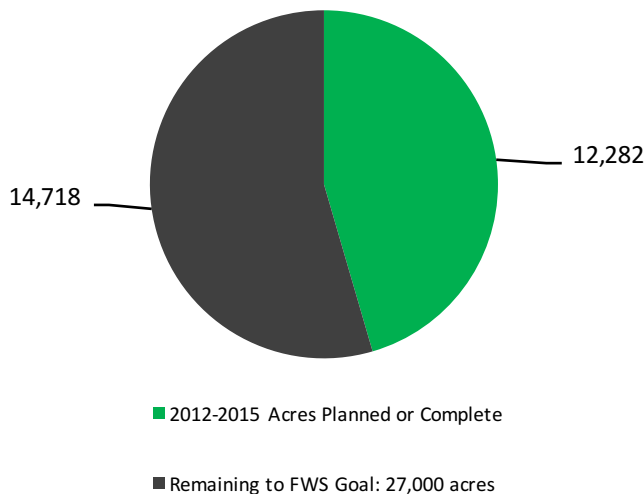
1. Seek statistical consultation to verify the feasibility of occupancy monitoring to detect regional trends and affirm population responses.
2. Analyze vegetation data and Eastern cottontail removal studies to refine management prescriptions, additional population research may be needed.
3. Evaluate yield target levels for biological feasibility, but also take measures to increase yield, such as increasing zoo capacity, building larger pens, increasing breeding frequency, and improving husbandry protocols.
4. Increase recruitment capacity and strategic outreach in priority focus areas.

**Recommended Strategy Adaptations:** *(Partial list, the full list is provided at the end of the report)*

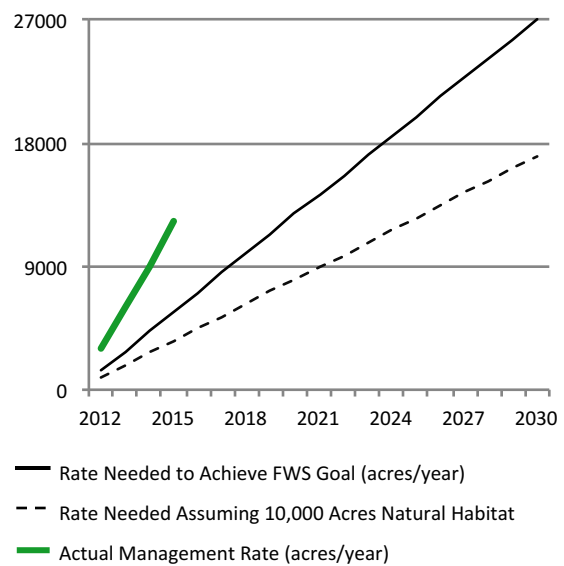
1. Add Habitat Management Work Group as an objective (012) to leverage study results to refine prescriptions.
2. Add Genetic Monitoring of Small Populations as an objective (206) to detect issues in small populations.
3. Develop a mechanism to conduct annual status assessments since, in light of the listing decision, FWS is no longer charged to do so.

**Progress Toward Habitat Goals:**

**Habitat Management Progress**



**Rate of Habitat Management**



**Figure 2.** Progress to FWS Habitat Goal (27,000 acres). Figures (acres) include planned and complete projects, but not natural habitat.

**Figure 3.** Rate of habitat management to reach FWS Habitat Goal (27,000 acres). Actual management includes planned and complete projects.

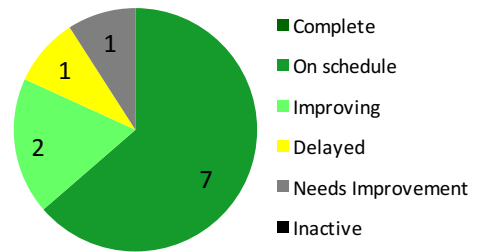
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**Strategy 000: Administration**

**Accomplishments Summary:**

- FWS announced their decision not to list NEC in September 2015.
- The Technical Committee (TechCom) has implemented the Conservation Strategy (Strategy) on schedule and delivered reports to the Executive Committee (ExCom) on time.
- All work groups are functional and meeting their primary charges.

**Status of Administrative Objectives**



**Figure 4.** Numbers represent objectives (see accompanying spreadsheets for details).

**Outstanding Uncertainties:**

1. The effort required to detect regional trends in occupancy is still unclear, and allocated funding may be inadequate to implement.
2. Successful implementation of planned habitat projects and recruitment of new ones in saturated landscapes may require additional funding for recruitment and technical assistance.
3. Availability of monitoring data limits the ability to effectively update FASSTs and report on status.
4. Data management issues remain a challenge.
5. Data sharing and standards remain an obstacle to efficient performance and status reporting.

**Priority Implementation Directions:** *(Partial list, the full list is provided at the end of the report)*

1. The TechCom needs to adhere to sharing and data management protocols to streamline performance reporting.
2. Report performance details in spreadsheet format and utilize a streamlined template (such as this one) for annual reporting to the ExCom.
3. The TechCom and Work Groups should begin to evaluate the need for future Strategy revisions.

**Recommended Strategy Adaptations:**

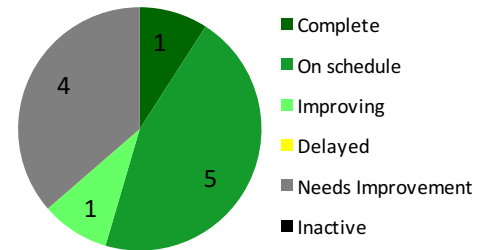
1. Change the performance measure for the ExCom to reflect the listing decision.
2. Eliminate quarterly reports for Work Groups.
3. Add Habitat Management Work Group as an objective (012) to leverage study results to refine management prescriptions.
4. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

## Strategy 100: Information Management

### Accomplishments Summary:

- Improvements have been made in the development of standard formats for some aspects of data management, including species occurrence data, lab results, and tracking performance information.
- Coordination with WLFW has simplified reporting of NRCS progress and improved accuracy.

### Status of Information Management Objectives



**Figure 5.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. Ability to complete data-sharing agreements to enter private lands data in WMI Tracker remains a challenge.
2. Data sharing and consistent use of standards remains a challenge.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Prioritize improvement of land management data protocols and develop templates to streamline performance reporting.
2. Refine and adopt a streamlined reporting format, such as this template and detailed tables for use by TechCom.
3. Modify WMI Tracker to accept species occupancy records and develop a mechanism for analysis of regional trends.
4. Consider updating and revising objectives for a future strategy revision.

### Recommended Strategy Adaptations:

1. Deactivate a redundant objective (102).
2. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

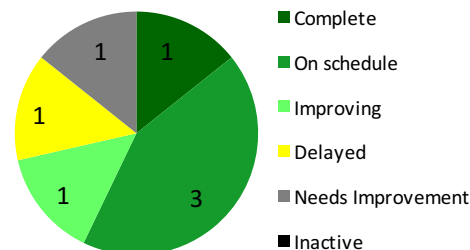
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**Strategy 200: Monitoring**

**Accomplishments Summary:**

- New models and monitoring site selection are improving mapping of habitat, but a unified approach is needed to map all habitat.
- The USGS monitoring protocol first tested in 2015 has benefitted from major revisions, and is now being piloted. It is unclear whether statistical power is adequate to justify implementation. Results from 2016 monitoring will be an important component of future evaluation.
- UNH completed a study evaluating the suitability of managed habitats. *The findings are generally positive*, but are still in review by TechCom.
- Vegetation data have been collected on managed sites for multiple years and are available to inform management.

**Status of Monitoring Objectives**



**Figure 6.** Numbers represent objectives (see accompanying spreadsheets for details).

**Outstanding Uncertainties:**

1. To date, the developing regional occupancy monitoring protocol has not adequately demonstrated power to detect long-term regional trends. Specifically, power analysis has neither considered Eastern cottontail influence on sampling variance nor adequately addressed year to year variance in population processes.
2. Studies measuring vegetation and population responses have not yet affirmed prescribed management is working.
3. Disease has been detected in captive populations, but no mechanism is available to detect disease in the wild.

**Priority Implementation Directions:** *(Partial list, the full list is provided at the end of the report)*

1. Finalize regional occupancy monitoring protocol by November 2016 with statistician consultation to affirm power.
2. Develop a status assessment protocol based on regional occupancy monitoring protocol and address capacity to implement.
3. Evaluate expansion of disease monitoring to wild populations.
4. Implement a mechanism or create capacity to evaluate Warren et al. 2016 and other vegetation data to inform management. Many approaches are in use, and a consolidated assessment is needed to assess management.
5. Evaluate monitoring efficacy to detect population level responses (see also 600 Research).
6. Consider updating and revising objectives for a future strategy revision.

**Recommended Strategy Adaptations:**

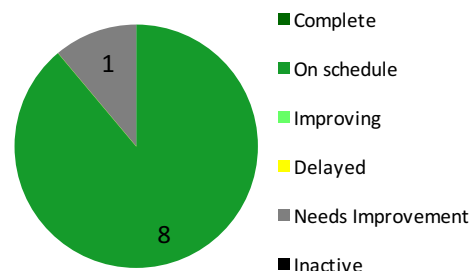
1. Add Genetic Monitoring of Small Populations as an objective (objective 206) to detect inbreeding, effective population size, and other potential issues in small populations.
2. Increase priority of habitat mapping to "High".
3. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

## Strategy 300: Landowner Recruitment

### Accomplishments Summary:

- Land Management Teams (LMT) met regularly in each state, but would benefit from increased frequency.
- According to Working Lands for Wildlife, land management costs \$575 per acre, not including technical assistance--more technical assistance is needed.
- Rangewide, over 1,300 landowners were contacted for land management recruitment purposes.
- 1-3 recruitment coordinators providing technical assistance to landowners have been supported in each state. Some of these positions will expire soon, and none have been hired in NY. Recruitment rates are low in NY and capacity is needed.

### Status of Landowner Recruitment Objectives



**Figure 7.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. Successful implementation of planned habitat projects and recruitment of new ones in saturated landscapes may require additional capacity for recruitment and technical assistance.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Increase LMT meeting frequency and interact with Outreach Work Group to refine performance measures.
2. Evaluate recruitment and technical assistance capacity and increase capacity in NY.
3. Evaluate benefit of updating parcel analysis based on new data to improve efficiency.
4. Consider updating and revising objectives for a future strategy revision.

### Recommended Strategy Adaptations:

1. Revise performance measure for objective 305 to reflect number of sites assessed and revisited.
2. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

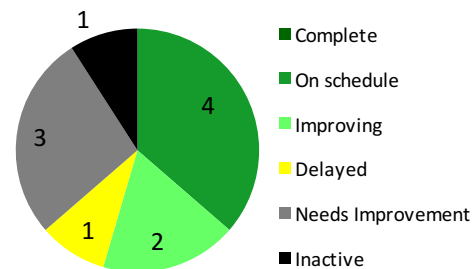
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## Strategy 400: Population Management

### Accomplishments Summary:

- 32 rabbits were captured from 5 focus areas and held in zoos for breeding.
- Zoo rabbits produced 103 young and 34 (33%) survived to weaning.
- No pens were built in 2015, but 32 rabbits were released in existing pens.
- The Patience Island colony is estimated at well over 100 animals, and is expected to provide increased augmentation of wild populations in 2016.
- Survival of animals released after 1 month is >75%, and 12% to the following spring.
- Reproduction was confirmed on 2/3 of augmented sites.

### Status of Population Management Objectives



**Figure 8.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. Captive survival of offspring is low at 33%, but increased production is needed to meet re-population goals.
2. Uncertainty surrounding survival and reproduction of augmented populations is largely resolved--both have been confirmed.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Adopt a structured process to allocate animals from/to source and release sites, to ensure augmentation where it is most needed and maintain healthy source populations.
2. Evaluate yield target levels for biological feasibility, but also take measures to increase yield, such as increasing zoo capacity, building larger pens, increasing breeding frequency, and improving husbandry protocols.
3. Expedite translocation of animals from Patience Island.
4. Develop recommendations to manage hunting after animals are released to augment populations.
5. Develop recommendations to manage Eastern cottontail based on CT studies.
6. Consider updating and revising objectives for a future strategy revision.

### Recommended Strategy Adaptations:

1. Modify performance measures/target levels to be biologically feasible.
2. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

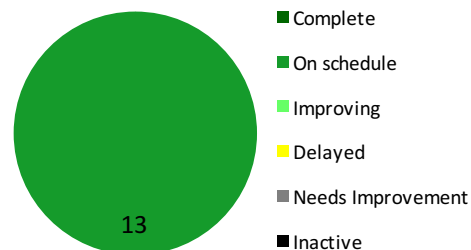


## Strategy 500: Habitat Management

### Accomplishments Summary:

- In total, roughly 12,282 acres of habitat management and restoration have been planned or implemented. While the status of projects is constantly changing, we estimate over 40% of the acres reported have been fully implemented.
- 6,740 acres were planned or implemented with NRCS funds.
- 1,329 private acres were planned or implemented with funds other than NRCS.
- 364 acres were planned or implemented on municipal lands.
- 3,098 acres were planned or implemented on state lands.
- 713 acres were planned or implemented on federal lands.
- 38 acres were planned or implemented on tribal lands.
- 1,037 acres of prescribed fire were planned or implemented, potential including lands noted above.
- Planned management will contribute approximately 24% toward the 27,000 acre FWS goal, and implemented acres contribute 21% toward the goal.

### Status of Habitat Management Objectives



**Figure 9.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. Successful implementation of planned habitat projects and recruitment of new ones in saturated landscapes may require additional capacity for recruitment and technical assistance.
2. Studies measuring vegetation and population responses have not yet affirmed prescribed management is working.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Update BMPs based on best available science and emerging population and vegetation response analyses.
2. Consider updating and revising objectives for a future strategy revision.

### Recommended Strategy Adaptations:

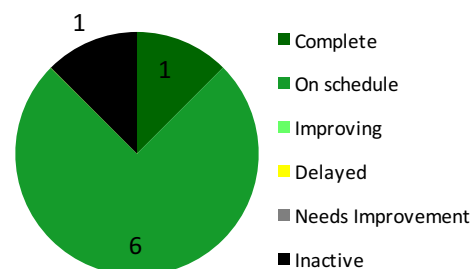
1. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

## Strategy 600: Research

### Accomplishments Summary:

- Urgently needed studies on NEC and Eastern cottontail responses to land management are nearing completion, but more research is needed.
- Urgently needed studies on NEC and Eastern cottontail responses to trapping and removal are nearing completion, but more research is needed.
- Although studies of detection and occupancy have been completed, development of a feasible long-term monitoring program is uncertain.
- Studies of disease, parasites, and habitat ecology are underway.

### Status of Research Objectives



**Figure 10.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. The major uncertainties noted in the Strategy still apply, but emergent uncertainties have not been evaluated.
2. Vegetation monitoring data have not yet reported trends and applied them to inform efficacy of management.
3. Occupancy monitoring may not be sufficient to link habitat management to population responses.
4. University research is not sufficiently focused on the most urgent issues, which include evaluation of management efficacy and rangewide responses.
5. Urgently needed studies have not yet reported findings and applied them to management. The status of uncertainties described in the Adaptive Management Strategy are shown below. In order to execute adaptive management, these need to be resolved and applied to management.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Convene the Research and Monitoring more Work Group more frequently to evaluate and prioritize science needs.
2. Convene a workshop to evaluate science applications to management uncertainties.

### Recommended Strategy Adaptations:

1. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

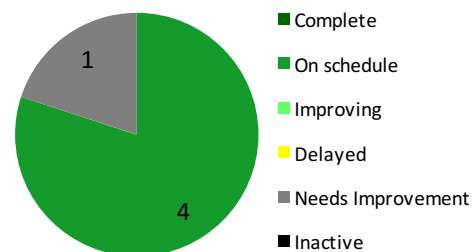
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## Strategy 700: Outreach

### Accomplishments Summary:

- To date, 28 habitat projects have been highlighted on the website, with over 20,000 unique visitors to the site in 2015.
- New performance measures are under development based on the strategy developed in 2014 and updated in 2015.
- Experts have been trained in all states via workshops at NEAFWA and workgroup calls, and various media/tools have been developed.
- In 2015, approximately 1,336 landowners were contacted using approaches and messages developed by the outreach strategy.
- Provided messaging and communications support for the Great Thicket LPP, and for the listing decision and listing event.
- Landowner thank you cards, magnets, and communications templates were developed and distributed.

### Status of Outreach Objectives



**Figure 11.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. Messaging may not remain effective through time.
2. Outreach capacity may not be sustainable.
3. Decision not to list may impact effectiveness of messaging and outreach in a positive or possibly a negative manner.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Complete the ongoing Outreach Strategy update.
2. Develop performance measures based on the Outreach Strategy, existing measures were noted as needing improvement by outreach staff and recognized as need for 2016.
3. Target priority focus areas identified in the 2014 status assessment with a strategic approach to understanding local dynamics and barriers to implementation.
4. Ensure partners know that management for NEC needs to continue into the future, as when habitat matures or becomes unavailable, new suitable habitats need to be created and available.
5. Consider updating and revising objectives for a future strategy revision.

### Recommended Strategy Adaptations:

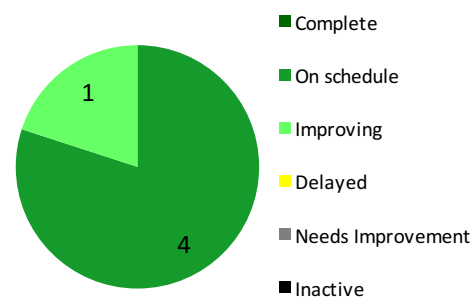
1. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

## Strategy 800: Land Protection

### Accomplishments Summary:

- The Great Thicket Land Protection Plan, developed by FWS, has been drafted and approved for public comment.
- The Land Protection Work Group collected information from each state about land protection in NEC focus areas and documented 8,350 parcel acres in transaction or secured in active NEC focus areas during 2012-2015. Many of these projects were not explicitly targeted at NEC conservation, but are relevant because of their location.
- Of the land protection projects documented, at least 30% of the parcel acreage is believed to contain suitable habitat for NEC, based on proximity, habitat type, or suitability models. This percentage has not been confirmed on the ground.

### Status of Land Protection Objectives



**Figure 12.** Numbers represent objectives (see accompanying spreadsheets for details).

### Outstanding Uncertainties:

1. Final approval of the LPP is unknown.
2. Willing landowners may not be available to meet LPP goals, and documented projects may not be willing to manage for NEC.
3. Criteria for project selection have not been determined.

### Priority Implementation Directions: *(Partial list, the full list is provided at the end of the report)*

1. Consider updating and revising objectives for a future strategy revision.

### Recommended Strategy Adaptations:

1. Minor modifications may apply, and if so, are detailed in the summary of recommended adaptations at the end of this report.

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**Summary of Charges and Strategy Adaptations**

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
001: Convene Executive Committee	No change.	Modify performance measure to “conduct at least 1 face to face meeting annually to review performance and recommended Conservation Strategy adaptations”. Modify target level to “1”.
002: Convene Technical Committee	Review all strategies and objectives in consideration of the need for future Strategy revisions.	No change.
003: TechCom annual review of species status	Develop an approach to status assessment since FWS no longer needs to report status (see 202.2).	No change.
004: TechCom annual review of performance	Recommend reporting in short narrative with workbook format appendices.	No change.
005: TechCom annual review of Conservation Strategy adaptations	Evaluate annual meeting timing that does not conflict with occupancy monitoring.	No change.
006: TechCom coordinate Information & Adaptive Management Work Group	Modify Tracker Database to accept monitoring data, develop templates for delivery of performance data.	Eliminate quarterly updates.
007: Coordinate Research and Monitoring Work Group	Prioritize research and evaluate/summarize findings to resolve uncertainties. Evaluate need for studies to measure both vegetative and population responses at the site level.	Eliminate quarterly updates.
008: Coordinate NEC Land Management Team in each state	Adopt and use reporting standards--use FWS project attribute table including non-Farm Bill private lands projects.	Eliminate quarterly updates.
009: Coordinate Population Management Work Group	No change.	Eliminate quarterly updates.
010: Coordinate Outreach Work Group	No change.	Eliminate quarterly updates.

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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
011: Coordinate Land Protection Work Group	Verify habitat suitability on protected lands.	Eliminate quarterly updates.
Add new objective 012: Coordinate Habitat Work Group	Develop performance measurement approach for habitat work group.	Add new objective 012: Coordinate Habitat Work Group
101: Assess data management needs	Prioritize improved data management in 2016.	No change.
102: Develop/integrate data management tools	No change.	Change Status of Objective 102 to "Deactivated, redundant with Objective 109"
103: Maintain/manage spatial data	Develop shared GIS portal	No change.
104: Maintain/manage planning data	Adopt and implement a streamlined performance tracking and reporting format.	No change.
105: Maintain/manage NEC status data	Improve data management based on 2016 monitoring results, modify WMI Tracker to accept and store monitoring data.	No change.
106: Maintain/manage management performance data	Resolve data sharing issues, reinforce the use of the FWS land management data template.	No change.
107: Acquire required data and permissions	Secure data sharing agreement with FWS and non-disclosure agreements with NY, RI and ME. Adopt FWS data entry template, upload public land data to WMI Tracker.	No change.
108: Provide technical assistance to managers	No change.	No change.
109: Generate status/ performance reports	No change.	No change.

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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
110: Respond to requests for data	No change.	Modify objective 110 target level to "All requests fulfilled"
201. Quantify extent of habitat	Evaluate approach to quantify extent of habitat. Evaluate need to modify objective.	Change priority level to "high".
202.1 Measure Habitat Occupancy Rates	Finalize protocol by November, 2016. Resolve issue of statistical power, which is highly uncertain due to mixed species samples and year to year population variation obscuring trend. Resolution of management response uncertainty is an urgent priority. Occupancy monitoring may not be sufficient to link habitat management to population responses.	No change.
202.2	Develop annual "status" reporting based on monitoring protocol, determine if there is additional capacity needed in 2016-2017.	No change.
203. Presence/ Absence distribution surveys	No change.	Delete "in a focal area".
204.1 Measure vegetation response to management	Identify capacity needed to summarize and analyze vegetation data, then conduct analysis to compare management approaches.	No change.

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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
204.2	Review Warren study, consider adopting habitat assessment methodology as a means to revisit managed sites, and evaluate next prescriptions. Consider interval (annual?) and proportion of sites revisited if the approach is appropriate.	No change.
205. Monitor disease	Evaluate expansion of disease monitoring to wild populations.	No change.
Add new objective 206: Monitor genetic health of small populations.	Develop performance measures, trigger, and approach for population genetic health monitoring.	Add new objective 206: Monitor genetic health of small populations.
301: Convene NEC Land Management Teams for each state (LMTs)	Increase meeting frequency.	Change target level to 4.
302: Create/apply incentives	No change.	No change.
303: Support recruitment coordinator	Evaluate capacity: address low recruitment in some states.	No change.
304: Contact landowners via mail/phone/workshops	Interact with outreach workgroup to standardize landowner contact measures.	No change.
305: Conduct site assessments	Evaluate Best Parcel measure (extends to many objectives).	Revise performance measure to "Number of sites assessed and proportion of sites revisited for post-management assessment". Revise target level to "20 per state, including revisits".
306: Draft application/preliminary plan/cost estimates	Evaluate recruitment performance measures (all 300 objectives).	No change.
307: Draft/review land management ranking and eligibility criteria	No change.	No change.



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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
308: Manage parcel information/landowner status	Evaluate need to update parcel analysis.	No change.
309: Develop/evaluate business plan incorporating parcel ranking & reserve design principles	No change.	No Change.
401.1: Extract NEC for captive propagation	Adopt structured process to allocate rabbits/sources among states/focus areas to maintain optimal captive population. Complete breeding manual update, included allocation and disposition process, and prepare strategy revisions for 2017.	No change.
401.2	No change.	Change target to 6
402: Zoo-based husbandry	1. Develop a recommendation to modify target level; 2. Add more zoos if necessary; 3. Work towards increased survival of young; 4. Develop new performance measure for survival of young.	No change.
403.1: Enclosure-based husbandry	Increase capacity by building more pens as needed.	Renumber Objective 403.6 to 403.1
403.2	Develop large scale outdoor breeding pen in NH to determine if increase production is feasible.	Modify Target level to 40/pen/year.
404: Manage island colony	Increase capacity and expedite release from Patience Island.	Change target level to 1 rabbit/acre of productive habitat/year.
405: Release NEC to augment population(s)	Increase capacity and expedite release from Patience Island.	Adopt survival rate and wild reproduction success as new measures for 405
406: Manage EC	Develop management actions/strategies to address EC based on results, including FASST revisions. Consider relation to available habitat and habitat goals. Resolution of management uncertainty is an urgent priority.	No change.
407: Manage predators	No change.	No change.

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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
408: Manage disease	No change.	Revise desired outcome as follows: "Disease detected in captive populations or in the wild (see 205) will trigger response to minimize impacts."
409: Manage hunting	Develop recommendations for limiting hunting at augmented sites	No change.
501: Create Demonstration Sites	No change.	No change.
502: Draft site-specific management plans	Recommend a new Performance Measure and Target Level.	No change.
503: Coordinate with NWR partnerships	No change.	No change.
504: Coordinate with Estuarine Research Reserves	No change.	No change.
505: Create Habitat through NRCS Funding	Evaluate acreage goals in all objectives and recommend necessary change.	No change.
506: Create Habitat on Private Lands (not NRCS Funding)	No change.	Replace "not eligible for" with "not funded by".
507: Create Habitat on Municipal Land	Evaluate goals and recommend necessary change.	No change.
508: Create Habitat on State Land	Evaluate goals and recommend necessary change.	No change.
509: Create Habitat on Federal Land	Evaluate goals and recommend necessary change.	No change.
510: Implement prescribed fire (acres)	Evaluate goals and recommend necessary change.	No change.
511: Refine Best Management Practices for Making NEC Habitat	Habitat work group to complete and distribute BMP Update. Include best available science as it is disseminated. Resolution of management uncertainty is an urgent priority.	No change.
512: Admin. support to manage contracting & vendors	No change.	No change.

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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
513: Implement restoration (acres) on Tribal Land	Evaluate goals and recommend necessary change.	Delete "& Inter-state..."
601: Determine NEC demography	RMWG and CBWG coordinate to develop RFP to address captive breeding uncertainties.	Change priority level to "high".
602: Determine NEC distribution/ abundance	No change.	No change.
603: Study NEC/EC interaction	Evaluate need for objective to study snowshoe hare interaction. Evaluate two-species models in the context of CT-DEP studies (see also 606). Evaluate need for additional population level studies of response to management.	No change.
604: Investigate habitat ecology	No change.	No change.
605: Study NEC taxonomy/genetics	No change.	No change.
606: Test management assumptions	Evaluate need for additional population level studies of response to management.	No change.
701: Develop outreach strategy	1. Update strategy; 2. Develop performance measures based on updated strategy.	No change.
702: Develop/maintain website	No change.	No change.
703: Develop Communications Products	No change.	No change.
704: Direct Outreach Efforts to NEC Focus Areas	No change.	No change.
705: Target Outreach to Key Audiences	Develop a recommendation to revise Performance measure	No change.

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**Summary of Charges and Strategy Adaptations** *continued*

Objective	Recommended TechCom & Work Group Charges	Recommended Strategy Adaptations
801. Expand NWR partnerships & land protection efforts	No change.	No change.
802. Develop local and regional land protection partnerships	No change.	No change.
803. Develop projects	Develop a recommendation to modify Performance Measure and Target Level	No change.
804. Raise funds	Develop a recommendation to modify Performance Measure and Target Level	No change.
805. Development of Land Protection Ranking Criteria	No change.	No change.