

FEASIBILITY STATEMENTS FOR BLACK RACER GOALS AND OBJECTIVES

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The desirability, feasibility, habitat capability, and possible consequences of the recommended Black Racer objectives are presented below. To achieve the stated objectives, survey and monitoring programs, habitat management activities, research, and outreach will all have to be increased significantly. The necessary financial and staff resources to meet all of these objectives are currently unavailable to the Maine Department of Inland Fisheries and Wildlife (MDIFW). Significant new funding will have to be generated, and outside expertise and short-term contract personnel will need to be hired.

GOAL: Ensure the long term viability of black racers and their habitat in Maine.

Funding Objective 1: By 2008, develop a plan and begin to secure funding to accomplish the following objectives

Desirability: Funding is essential to accomplishing the objectives discussed below. The level of funding will directly influence which objectives are addressed and whether they are accomplished by the target dates outlined.

Feasibility: State Wildlife Grants and monies acquired through the Endangered Species Fund (Chickadee Check-off and Conservation Plate revenues) are not adequate to accomplish all of the proposed objectives. Additional funding opportunities are possible but securing them in the amount needed is uncertain. The feasibility of accomplishing this and the other objectives will depend greatly on funding.

Capability of Habitat: N/A

Possible Consequences: Funding will determine which and to what level each of the below objectives are addressed and greatly influence the timeline.

Population Objective 1: By 2008, launch a comprehensive survey to determine the distribution of all populations of black racers in Maine, and by 2015, map all of these known populations.

Desirability: Determining distribution of all black racer populations in the state is of utmost importance in providing the snakes and their habitat appropriate protections. As development pressures continue to increase in southern Maine, documenting where black racer populations occur is crucial in providing towns and land owners with accurate information to aid

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conservation planning. Currently, black racers have been documented at approximately 30 sites in Maine, mostly in York County. However, to date, a comprehensive survey has not been attempted, and it is possible additional populations may be discovered. In addition, many of the “known” racer records will need to be re-surveyed. Habitat changes at these sites may have occurred, thus increasing or decreasing suitability for racers. Completing a statewide survey would provide MDIFW with a thorough and up-to-date understanding of the distribution and status of both black racers and available habitat. Known populations should be mapped as soon as possible (i.e., well before the identified 2015 target date). However, due to the cryptic nature and sampling difficulties associated with determining black racer presence at potential new sites, the 2015 deadline is warranted to accurately determine racer distribution in Maine.

Feasibility: Since 1986, MDIFW has tracked black racer element occurrences; however, due to the species apparent rarity and cryptic nature, determining presence is not as straight forward as once thought. Multiple visits, over multiple years, to appropriate/potential habitat within the species’ range may be necessary to accurately document the presence and relative abundance of black racers. Recent work with racers in Maine, along with other studies throughout their range, suggest these snakes need large blocks of appropriate habitat (>10 ha.). In addition, there is some evidence to suggest that black racers may be tied to grassland sand-barrens and similar open, xeric habitats. Increasing development in southern Maine has greatly reduced and fragmented these habitat types. Once these habitat requirements are better understood (see “research objective 1”), the use of GIS and other analytical mapping tools might be applied to identify appropriate soil, vegetative, and community characteristics where new populations might be found. Because the number and distribution of existing and potential occurrences are likely to be limited, a statewide survey of all potential habitats is feasible. However, possible conflicts with the timing, funding needs, and research priorities of other black racer objectives may impede progress (see “funding objective 1”).

Mapping all known black racer populations by 2015 is feasible, however, the quality and completeness of this information will be dependent on both the comprehensive surveys to identify these populations and the information obtained on black racer ecology identified below in “research objective 1”.

Capability of Habitat: N/A

Possible Consequences: A comprehensive statewide survey for black racers would provide MDIFW with a complete and current understanding of this endangered species’ distribution and status in Maine. It is possible that final results of the survey could affect the outcome of other objectives. Some landowners may object to surveys being conducted on their property. The

level of effort (both number of personnel/contractors and longevity of the survey period) will ultimately determine the completeness of our knowledge of black racer population distribution. Research on the species' home range size, movement, and habitat requirements will directly influence the quality and accuracy of mapping.

Population Objective 2: By 2018, determine an estimated minimum viable population (MVP) for black racers in Maine, and establish specific, regional based population objectives, and implement measures to attain those population objectives.

Desirability: A MVP model is essential to understanding risk of extinction and establishing meaningful recovery goals. Developing specific regional based population objectives using an MVP will provide MDIFW with direction for management and recovery efforts at a local level.

Feasibility: A working MVP for black racers in Maine would have to be developed largely from existing population data for related species. Current literature and recovery plans would have to be reviewed for suitable population parameters and their compatibility with black racers. These models could then be customized over time, as value inputs for racers in Maine and elsewhere at the northern extent of their range are determined. Within these limitations, developing a working MVP is feasible by 2018 (but see "funding objective 1").

Capability of Habitat: N/A

Possible Consequences: Given the current lack of specific life history information available for black racers in Maine, the accuracy and/or reliability of an MVP may be questionable. However, by 2018, some of these data are likely to become available, and a working model could be used to help identify research and management priorities, and increase efficiency.

Habitat Objective 1: By 2015, determine the amount and quality of habitat with known black racer occurrences in Maine.

Desirability: Until specific habitat parameters or limiting factors are identified, only the presence of black racers can describe with any certainty the suitability of a site. Addressing the current objective along with "population objective 1" and "research objective 1" will provide MDIFW information needed to adequately select survey sites and areas of potential black racer habitat (see "habitat objective 2").

Feasibility: Similar to "population objective 1" determining the amount and quality of habitat with known black racer occurrences is feasible by 2015, however, the quality and completeness of this information will be dependent

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on both the comprehensive surveys including revisits to known sites (“population objective 1”) and the information obtained on black racer ecology identified below in “research objective 1”.

Capability of Habitat: N/A

Possible Consequences: The quality of ecological information (“research objective 1”) is paramount to determining what is viewed as “quality” habitat for black racers in Maine. It’s also worth noting that a species of open areas and early successional growth, such as the black racer, will likely experience fluctuation in the availability and quality of it’s preferred habitat. Without habitat management (either direct or indirect), estimates of the amount and quality of black racer habitat may quickly become outdated.

Habitat Objective 2: By 2010, identify areas of potential black racer habitat in Maine.

Desirability: The status and recovery potential of black racers likely depends primarily on the size, availability, distribution, and long-term persistence of suitable, open habitat. Completing a statewide assessment of all potential habitats would provide MDIFW with a comprehensive understanding of potential black racer distribution, abundance, and capacity to support viable populations. This information would be essential to developing black racer population and habitat management goals, as well as identifying sites for long-term conservation.

Feasibility: Suitable black racer habitat in Maine is, at present, not well studied. Both “population objective 1” and “research objective 1” will aid MDIFW in identifying appropriate areas of habitat and will need to be initiated (but not necessarily completed) before it is feasible to address this current objective. The use of computer mapping tools to select for soils, vegetation, and other parameters identified as important to black racers, could help focus additional survey efforts.

Capability of Habitat: N/A

Possible Consequences: It may be discovered that there is inadequate quality habitat available outside of the known racer populations, and that long-term management efforts will be necessary to maintain or create habitat for the species. Until specific habitat parameters or limiting factors are identified, only the presence or absence of black racers can describe with any certainty the suitability of a site. The quality of a site could become altered – either positively or negatively - on a temporary, long-term, or even permanent basis by management actions or natural events, such as succession or fire. The potential for a site to become degraded or improved should be considered

when assessing potential habitat quality for black racers. It is likely that even appropriate habitat will need future management to prevent succession.

Habitat Objective 3: By 2008, launch a program to protect and manage as much known black racer habitat in Maine as possible.

Desirability: Black racers are currently known from approximately 30 sites in Maine. As outlined in Maine's Endangered Species Act, MDIFW has a responsibility to conserve this species and its habitat for the future. Providing long-term protection and management of what appears to be limited habitat is likely the single most important recovery action for black racers. Without habitat protection and management efforts, recovery will be continuously jeopardized by both natural and human-induced events that may directly harm the snakes or degrade their habitat. Having a habitat protection and management program in place by 2008 will allow immediate action to be taken as suitable areas are identified under Habitat Objective 1 and Habitat Objective 2.

Feasibility: Procuring long-term protection, either through fee acquisition, easement, cooperative management agreements, or regulatory protection (i.e. Essential or Significant Habitat designation) of known black racer sites is important to the long term viability of this species. Due to an apparent preference for open, well drained soils in southern Maine, current development pressures on black racer habitat is a real threat. Due to potential profit from development, landowners may be unwilling to transfer either ownership or management rights, or develop working management agreements to protect racers and their habitat. As such, protection opportunities are expected to be limited, so a pro-active and opportunistic approach should be utilized immediately to maximize the amount of habitat that is protected and managed for this species. Fee acquisition of sites would require funding that is not currently available to MDIFW. However, outside funding sources (i.e. OHF, LMFB, etc) could be sought and partnerships forged (e.g. TNC, local land trusts) to supplement limited MDIFW monies in those cases where cooperative management agreements, or regulatory protection, would not meet habitat protection needs.

Management actions are expected to be needed at most black racer sites, where forest succession potentially compromises habitat quality for this early successional species. Potential human-induced changes in habitat short of conversion (i.e. ATV damage to nest sites, over burning of grassland areas, etc) also need to be monitored and prevented. MDIFW is currently conducting a pilot study on black racers where data on habitat use will help us understand and facilitate management needs. Once this information is acquired, management objectives, feasibility, and potential costs may be better understood. Efforts to create new habitat may require additional funding, which is currently unavailable to MDIFW.

Capability of Habitat: It is possible that statewide surveys for black racer may discover additional sites that require protection and management – particularly in relation to existing populations and gaps in between. Given the extreme rarity of large, persistent stands of open grassland-sandplain and barrens habitat, however, it is not likely additional large populations of the snakes will be found.

Possible Consequences: It is possible some private landowners may not voluntarily cooperate with MDIFW in protecting black racers on their lands. This may affect recovery efforts, and ultimately require habitat protection through regulation. Management practices in favor of early successional growth could potentially alter habitat for other rare species. Long-term protection and management of black racer habitat might conflict with existing management plans for conservation lands (e.g., grassland birds, rare plant community management) or with current use and demand of public and recreational lands. Staff time and funding, particularly from MDIFW regional offices, may be diverted from competing priorities.

Habitat Objective 4: By 2018, determine what percentage of known black racer habitats need to be protected and managed to ensure the long-term viability of the species in Maine.

Desirability: Black racers are currently known from approximately 30 sites in Maine. As outlined in Maine’s Endangered Species Act, MDIFW has a responsibility to conserve this species and its habitat for the future. Providing long-term protection and management of what appears to be limited habitat is likely the single most important recovery action for black racers. Without habitat protection and management efforts, recovery will be continuously jeopardized by both natural and human-induced events that may directly harm the snakes or degrade their habitat.

Feasibility: As the other identified black racer objectives are addressed, a more meaningful, quantitative estimate of the amount/percentage of racer habitat to protect will be possible. Determining what percentage of racer habitat needs enhancement, management, and/or protection should be feasible by 2018.

Capability of Habitat: N/A

Possible Consequences: A meaningful estimate depends on the amount and quality of data generated from other objectives, specifically “population objective 1” and “research objectives 1, 2, & 3”.

Habitat Objective 5: By 2018, launch a program to protect and manage in perpetuity, all lands identified in Habitat Objective 4 that have not been addressed under Habitat Objective 3.

Desirability: Black racers are currently known from approximately 30 sites in Maine. As outlined in Maine's Endangered Species Act, MDIFW has a responsibility to conserve this species and its habitat for the future. Providing long-term protection and management of what appears to be limited habitat is likely the single most important recovery action for black racers. Without habitat protection and management efforts, recovery will be continuously jeopardized by both natural and human-induced events that may directly harm the snakes or degrade their habitat.

Feasibility: As stated above, once a quantitative estimate of the amount/percentage of racer habitat to protect is calculated ("habitat objective 4") the current objective will be possible and should be feasible by 2018.

Capability of Habitat: N/A

Possible Consequences: With the acquisition of racer habitat/public lands, additional questions and issues regarding land use and management options could arise.

Research Objective 1: By 2008, initiate studies to determine foraging ecology, movement ecology, and habitat use and selection of black racers in Maine with a target research completion date of 2015.

Desirability: Knowledge of the basic natural history of black racers in Maine is imperative to understanding the species ecology and thus to inform mapping, conservation, and recovery efforts.

Feasibility: Despite current studies underway by MDIFW to gather baseline data on black racer movement and habitat use, a greater effort will eventually be required to gain a better understanding of these questions. At present, MDIFW does not have the resources (finances or staff time) to address this research. Assuming funds become available to fund a graduate student or support a project coordinator(s), it will be feasible to complete this objective by 2015.

Capability of Habitat: N/A

Possible Consequences: Depending on the level of funding, sample size and/or replication may have to be sacrificed in order to gather basic data to provide insight into black racer natural history. As several other identified objectives are dependent on these data, these sacrifices would be unfortunate.

Research Objective 2: By 2015, determine population dynamics and conduct a PVA of the major population occurrences of black racers in Maine.

Desirability: Ultimately, understanding black racer population dynamics and a PVA will provide MDIFW with the information necessary to best inform future management decisions and objectives to ensure the long term viability of this species in the state.

Feasibility: Assuming “research objective 1” is completed on schedule, it seems feasible that a PVA for each population occurrence can be performed by 2015.

Capability of Habitat: N/A

Possible Consequences: The number of black racer populations known will greatly influence the amount of work needed to achieve this objective.

Research Objective 3: By 2015, determine limiting factors of black racer populations in Maine.

Desirability: Limiting factors affecting black racer populations in Maine are unknown. These factors are essential to determining the best management strategies and recovery potential for black racer.

Feasibility: As other identified research and population objectives are initiated and accomplished, more information on black racers in Maine will be available to assist in determining the species’ limiting factors. It is feasible that, by 2015, MDIFW will have more insight into possible limiting factors, but due to the potential complexity of this question, this is not guaranteed.

Capability of Habitat: N/A

Possible Consequences: Determining limiting factors of black racer populations may identify additional research and recovery needs.

Outreach Objective 1: By 2008, and in conjunction with partners, launch an outreach plan to increase awareness and understanding of the black racer, its known habitat/occurrences, and its conservation status in Maine. Outreach should be targeted at affected towns, landowners, conservation partners, and the general public as soon as the information becomes available.

Desirability: Support of black racer recovery by the general public, and by affected landowners and towns in particular, is essential to a successful

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recovery program. This is a reasonable and desirable objective; however, caution should be utilized with distributing specific location information pertaining to Endangered species to the general public.

Feasibility: Developing an outreach program to increase awareness and appreciation of black racers on both a local and statewide level is essential to building support for habitat protection and management actions necessary to recover the species. The majority of Maine's documented occurrences of black racers are from the southern part of the state, with the most recent reports being concentrated in just five towns: South Berwick, Lebanon, Sanford, Kennebunk, and Waterboro. Only one recent record stands apart from this cluster – one in southern Androscoggin County. Some outreach materials for black racers have already been developed by MDIFW (e.g., "Snakes of Maine" poster, "Maine's Endangered and Threatened Wildlife" book, etc.). Funding would be necessary to develop and produce additional materials, and to contact and work with landowners and municipal officials. Partnerships (e.g., with industrial landowners, local civic groups) could be developed, where appropriate, to assist with outreach efforts. Though the desirability of this objective is sound, real time sharing of data presents several problems and issues, many of which have been discussed well outside just black racers. Currently, MDIFW strives to make natural resource data available in a timely manner to towns, land trusts, and partner agencies. Both the feasibility and effectiveness of this objective is tied to improvements in database and tracking software.

Capability of Habitat: N/A

Possible Consequences: Promoting awareness of this endangered snake could result in an increased persecution of the species which in turn could increase threats to its recovery. On the contrary, a successful outreach program would have many positive consequences, not least of which would be a better appreciation for species diversity and the role snakes play in the environment. It seems the value of sharing and making public endangered species data likely outweighs former practices of keeping this information confidential. Nevertheless, the geographic specificity and target audience should be considered on a case by case basis so that this information does not harm the species at risk (e.g., direct persecution, collecting, etc.).