

Appendix 4.5

Level 2 Actions that would benefit less than 10% of all SGCN

A.2.2 - Reintroduce or relocate individuals

This action supports 34 SGCN (6%) and is most relevant for invertebrates (25 species, 20%), fish (5 species, 14%), and mammals (2 species, 12%). Reintroduction and relocation are typically used when natural recolonization is unlikely or when existing populations are unsustainable due to habitat fragmentation, climate shifts, or catastrophic events. Species that may benefit include freshwater mussels displaced by infrastructure projects, as well as pollinators whose historic habitats are being restored through active planting and management.

Taxa Teams noted that relocation efforts are already underway or are being considered for several aquatic invertebrates and fish, often as part of dam removal or stream restoration projects. While relocation carries risks, such as stress, disease transmission, or site unsuitability, rigorous protocols and pre-assessments can increase success rates. Metrics may include survival and reproduction post-release, habitat occupancy over time, or the retention of genetic diversity. Because these projects often require intensive planning and monitoring, coordination with academic and regulatory partners is crucial.

A.2.3 - Stewardship of captive individuals

This action supports 29 SGCN (5%) and is most relevant for invertebrates (22 species, 18%), fish (5 species, 14%), and mammals (2 species, 12%). Captive stewardship includes maintaining assurance colonies, breeding for reintroduction, or holding individuals for treatment or temporary protection. Species such as rare freshwater mussels, threatened cave invertebrates, or disease-impacted bat species may require off-site management to preserve genetic material or stabilize populations.

While captive programs are rarely first-line conservation solutions, they are increasingly necessary for species facing extinction due to rapid declines or catastrophic events. Taxa Teams emphasized that captive programs must be carefully integrated with in situ conservation and supported by strong husbandry protocols and genetic monitoring. Success metrics could include the number of individuals maintained, successful reintroductions, or retention of gene diversity in ex-situ colonies. Because these programs

require specialized facilities and long-term commitment, partnerships with zoos, aquaria, and academic institutions are often essential.

B.3.1 - Outreach communication and distribution

This Level 2 action supports 45 SGCN (8%), comprising 16 birds (36%), 12 fish (27%), seven herps (16%), and six mammals (13%). It focuses on developing and disseminating outreach materials, such as fact sheets, videos, websites, and other media, designed to educate the public, stakeholders, and specific user groups about Connecticut's SGCN and the importance of biodiversity conservation. While its coverage is narrower than the broader B.3.0 action, this strategy can be impactful in amplifying understanding of particular conservation needs, such as rare cold-water stream fish, early successional birds, or amphibians vulnerable to road mortality.

Taxa Teams emphasized that outreach must be tailored to different audiences, using clear and accessible language and trusted messengers. Materials may need to be available in multiple languages, include visual aids for species identification, or be adapted for specific groups such as recreational anglers, utility managers, or school educators. Metrics of success could consist of distribution reach, website traffic, or pre- and post-surveys assessing changes in knowledge. While insufficient, well-crafted communication materials are essential for building broad-based support and participation in SGCN conservation.

B.4.1 - Detection and intervention

This action supports 16 SGCN (3%), including nine birds (12%), three Amphibians and Reptiles (9%), and two fish (6%). Detection and intervention activities involve identifying illegal activities, such as unlicensed collection, take, or habitat alteration, and intervening before irreversible damage occurs. Examples include preventing the poaching of rare turtle nests, responding to reports of illegal stream alterations that affect cold-water fish, or addressing unauthorized clearing of rare plant habitats.

Taxa Teams emphasized that proactive detection requires both staff capacity and public involvement. Strategies may include training conservation officers, establishing citizen reporting mechanisms, and deploying trail cameras or drones in areas known to be high-risk. Evaluation metrics may include the number of violations documented, resolution time, or changes in behavior in targeted areas. While its species coverage is limited, this action is necessary for addressing intentional, high-impact threats to certain vulnerable species and habitats.

B.4.2 - Prosecution and conviction

This action supports only eight SGCN (1%) and is the least directly relevant Level 2 action under Law Enforcement and Prosecution. Beneficiaries include five birds (6%), two Amphibians and Reptiles (6%), and a single invertebrate (1%). This strategy focuses on pursuing legal action against serious violations of conservation laws, including repeat offenses, commercial exploitation, or major habitat destruction. Although infrequently needed, effective prosecution can serve as a deterrent and affirm the seriousness of wildlife protection laws. Taxa Teams did not prioritize this action highly but acknowledged its role in upholding the rule of law in cases where outreach and deterrence have failed.

B.5.1 - Conservation business development

This action supports only 1 SGCN. However, conservation-oriented business models, such as ecotourism, wildlife-friendly agricultural ventures, or land management enterprises, may indirectly benefit species and habitats over time. For example, birdwatching or nature-based recreation businesses could help incentivize the retention of grassland or shrubland habitats that support species like the Eastern Meadowlark or Field Sparrow. While the conservation impact of such ventures remains limited without direct habitat commitments, these models may complement outreach and economic development efforts in rural communities.

B.5.2 - Development of improved products and production methods

This action also supports just 1 SGCN. Nonetheless, innovations in wildlife-compatible materials or land-use practices, such as bird-safe agricultural netting, non-toxic pesticides, or modified mowing equipment, could modestly benefit farmland or early successional bird species, like the American Kestrel or Savannah Sparrow.

B.5.3 - Market-based incentives

Only 1 SGCN is currently associated with this action. Market-based approaches, such as carbon credits, biodiversity offsets, or wildlife-friendly product certification, offer theoretical potential to incentivize habitat protection or restoration. For example, bird species in agricultural landscapes may benefit if certification programs encourage rotational grazing or the planting of native grasses. However, no existing market mechanisms in Connecticut currently deliver measurable conservation gains for SGCN, and this action remains speculative without significant investment in infrastructure or policy support.

B.5.4 - Economic incentives and disincentives

This is the most relevant Level 2 action, supporting 6 SGCN (1%), all of which are birds. Tools in this category include tax abatements for forest or wetland preservation, payments for ecosystem services, or penalties for unauthorized habitat destruction. These mechanisms can potentially influence landowner behavior at a large scale, particularly for habitat types that are vulnerable to fragmentation or degradation. For example, forest interior species, such as the Wood Thrush and Cerulean Warbler, may benefit if landowners are financially incentivized to maintain contiguous forest cover.

While relatively few species are currently tied to this action, Taxa Teams noted its broader strategic value. Success metrics may include participation rates, acres conserved, or trends in habitat *conditions* following implementation. Because these tools rely on enabling legislation and agency infrastructure, sustained investment and coordination are necessary to realize their potential.

B.5.5 - Non-monetary values

This action supports one SGCN and has minimal direct relevance but may contribute to broader conservation awareness. Non-monetary incentives, such as landowner recognition, conservation awards, or certification signage, can build community pride and reinforce pro-conservation behavior. These strategies may be particularly useful in suburban or exurban areas where regulatory or financial mechanisms are less applicable. While their influence is difficult to quantify, they may indirectly benefit species such as the Chimney Swift or backyard-associated pollinators by encouraging low-impact landscaping and habitat retention.

C.7.1 - Create, amend, or influence legislation, regulation, or codes

This action supports 50 SGCN (9%). It is particularly important for fish (20 species, 57%) and invertebrates (19 species, 15%), which are vulnerable to habitat degradation resulting from water withdrawals, pollution, and poorly regulated land-use practices. Legislative strategies may target streamflow standards, species protections, or prohibitions on harmful practices such as the harvest of keystone species. For instance, the passage of HB 6484 in 2023, which banned the harvest of Horseshoe Crabs, addressed a critical food web linkage for migratory shorebirds, such as the Rufa Red Knot. Similarly, amphibian and reptile teams cited the importance of earlier regulatory amendments, which added the Spotted Turtle and Red-spotted Newt to Connecticut's protected species list (Reg. 26-66-14 and 26-66-13). While legislative change can be politically and procedurally complex, recent progress demonstrates that well-supported proposals can succeed, especially those backed by clear scientific data and broad public support. Metrics for success could

include passing new legislation, incorporating SGCN into regulatory review frameworks, or measurable reductions in threats linked to legal reform.

C.7.2 - Create or amend policies, guidelines, or best practices

This action supports 38 SGCN (7%) and is especially relevant to invertebrates (20 species, 16%), fish (7 species, 20%), and mammals (3 species, 18%). It focuses on non-statutory mechanisms such as agency guidance, technical manuals, or voluntary best management practices (BMPs) that influence land and water use without requiring legislative action. For example, CT DEEP's mussel relocation protocols, now regularly used during bridge and culvert replacement projects, help protect sensitive freshwater invertebrates without halting infrastructure updates and repairs. Likewise, recent efforts to integrate road-crossing design standards for amphibians and vernal pool buffers into town guidance documents have expanded habitat protections without the need for formal rules.

The 2023 passage of HB 6607, which mandates reduced nighttime lighting on state buildings, demonstrates how conservation goals can shape policy initiatives even when not tied to new species-specific statutes. Supported by Lights Out Connecticut and ornithological partners, the law addresses one of the primary urban threats to migratory birds. Similar opportunities exist for guidance on mowing practices for pollinators, utility corridor management for turtles, or stormwater practices for stream-dwelling fish. Outcomes may include the issuance of new Best Management Practice guidelines, revisions to existing planning tools, or documented improvements in compliance with voluntary standards across municipalities and sectors.

C.9.1 - Academic training

Academic training supports only four SGCN (1%) and should be considered a low-priority standalone action. Beneficiaries include two birds (3%) and two mammals (12%), with no species from other taxonomic groups directly tied to this action. Nonetheless, targeted investments in academic programs, such as specialized degrees in wildlife biology, botany, or aquatic ecology, may help fill persistent gaps in professional capacity. For example, mammal taxa teams identified a need for more practitioners trained in small mammal survey techniques and population monitoring, which are not widely taught in general ecology curricula.

While its direct impact is limited, this action could be integrated into broader capacity-building efforts to ensure a pipeline of qualified staff for key roles. Potential metrics include enrollment or graduation rates from relevant academic programs, establishment of new course offerings, or partnerships with local universities to expand applied research opportunities for students working on SGCN-related topics.

C.9.2 - Training and individual skill development

This action supports 17 SGCN (3%), with cross-taxa relevance including mammals (5 species, 29%), birds (8 species, 10%), and smaller contributions for herps, fish, and invertebrates. Skill development initiatives can enhance capacity among land managers, field technicians, municipal staff, and community partners to carry out key conservation tasks—from identifying rare species to applying prescribed fire safely and effectively. Several Taxa Teams emphasized the importance of hands-on training, particularly for specialized techniques such as bat acoustic monitoring, eDNA sampling for rare fish, and the safe handling of amphibians during road-crossing programs.

Training efforts can also build local capacity in areas where professional expertise is scarce. For example, conservation of turtle species on private lands may hinge on landowners' understanding of best practices for nest protection or habitat mowing schedules. Success can be measured through the number of participants trained, skills assessments conducted both before and after training, or the follow-up implementation of conservation techniques. Given its relatively modest species coverage, this action may be most effective when nested within partnership or outreach initiatives that broaden its reach and application.

C.10.1 - Administration and internal organizational management

This action supports only one SGCN in Connecticut, an amphibian, making it the least directly relevant Level 2 action under Institutional Development. Because this action has a minimal direct impact on SGCN, it should not be prioritized as a standalone investment. Instead, it may be most useful when integrated into broader efforts to support capacity development (C.10.2) or funding acquisition (C.10.4), ensuring that internal systems do not become a bottleneck to conservation delivery. Metrics of success could include reduced administrative delays for project implementation, increased transparency in conservation decision-making, or staff satisfaction and retention in conservation agencies.

C.10.2 - External support and organizational development

Although this action supports only 12 SGCN statewide (2% of all SGCN), it remains important for enabling smaller or under-resourced organizations to contribute meaningfully to conservation goals. SGCN potentially benefit from this action, including species such as Northern Leopard Frog and several rare birds and fish that rely on local stewardship entities, municipalities, or regional watershed groups. These organizations often face barriers related to staffing, technical knowledge, or stable governance, which can prevent them from implementing management or monitoring actions even when funding is available.

Support strategies may include leadership development, governance restructuring, or shared staffing models between conservation organizations. While the number of species directly tied to this action is modest, enhancing institutional stability and delivery capacity in underserved areas may have a disproportionate impact on habitats that are difficult to reach through state-led efforts alone. Tracking the number of strengthened organizations, new staff roles created, or improved coordination structures could be useful progress metrics.

C.10.3 - Alliance and partnership development

Thirteen SGCN benefit from formalized alliance and partnership development actions, with the highest relevance for birds (7 species, 9%), mammals (2 species, 12%), and fish (2 species, 6%). While not among the highest-impact actions, this strategy is important for overcoming jurisdictional and ownership boundaries that limit habitat-scale conservation. For example, Eastern Meadowlark and Brook Trout depend on coordinated stewardship across towns, utilities, and private landowners to maintain open habitats and cold-water stream conditions. Measurable outcomes might include the number of operational partnerships, formal agreements signed, or shared management plans adopted across institutional boundaries.

C.10.4 - Conservation funding

Securing consistent, flexible conservation funding is essential for implementing nearly all other actions in this plan. This action supports 10 SGCN, with the strongest associations among birds (8 species, 10%) and low relevance for fish (1 species, 3%) and mammals (1 species, 6%). While relatively few species are directly tied to this action, Taxa Teams repeatedly emphasized that inadequate or unreliable funding limits species recovery, long-term monitoring, and habitat management. This is especially true for taxa that lack traditional funding streams, such as non-game birds or small mammals, or for actions that require sustained effort over multiple years.

This action includes increasing funding for existing programs (e.g., State Wildlife Grants), developing new funding mechanisms (e.g., payment for ecosystem services, climate resilience bonds), and improving access to existing sources through technical support or administrative simplification. Metrics could include increased funding allocated to SGCN projects, the number of organizations receiving financial support, or the establishment of new dedicated funding sources. Because financial resources underpin capacity, implementation, and institutional stability, success in this area is essential to the long-term viability of all conservation efforts in Connecticut.