

APPENDIX F. Conservation Actions for GCN Species and Habitats

List of Specific Actions			
Action ID	Action Level	General Action	Specific Action Description
1	Regional	Fee-title Ownership	Use federal/state/private funding sources to acquire critical units of aquatic, subterranean, and terrestrial habitats which provide species protection, buffering, connectivity, and/or perpetuation of natural processes.
2	Statewide	Fee-title Ownership	Revive TN Protection Planning Committee to coordinate land acquisition priorities among state/federal agencies and non-governmental organizations.
3	Regional	Permanent Protective Easements	Use federal/state/private funding sources to acquire permanent easements within critical units of aquatic, subterranean, and terrestrial habitats which provide species protection, buffering, connectivity, and/or perpetuation of natural processes.
4	Statewide	Permanent Protective Easements	Revive TN Protection Planning Committee to coordinate acquisition of permanent protective easements among state/federal agencies and non-governmental organizations.
5	Statewide	Communications & Public Relations	Develop a multi-media public outreach campaign to promote the availability of government-funded incentive programs to private landowners.
6	Regional	Communications & Public Relations	Develop a multi-media public outreach campaign to promote awareness of the negative effects of invasive exotic species.
7	Statewide	Communications & Public Relations	Develop a multi-media public outreach campaign to promote the need for conserving rare, threatened, or endangered species and habitats.
8	Regional	Conservation Planning	Develop/participate in regional conservation planning initiatives sponsored by federal and state agencies (e.g. TDEC Recreation Management Plan, State Park planning, State Forest planning, TWRA regional planning, USFWS Joint Venture planning, TVA Reservoir Operations study, etc.)
9	Regional	Conservation Planning	Develop/participate in regional planning initiatives sponsored by non-governmental organizations or public/private partnerships (e.g. TNC ecoregional planning, WWF watershed planning, Cumberland Region Tomorrow - Community Quality Growth Planning, Partners In Flight, Audubon - Important Bird Areas, Habitat Conservation Plans, etc.).
10	Statewide	Conservation Planning	Develop central database to combine/reconcile/maintain state & federal agency, non-governmental organization, and university sources of data for target species and habitats.
11	Statewide	Formal Education, Training, Outdoor Education, & Recreation	Develop outdoor education and recreation programs that inform the public about the effects of recreational vehicles and various other recreational uses on target species and habitats.
12	Statewide	Formal Education, Training, Outdoor Education, & Recreation	Incorporate information about protection of target species and habitats into forestry training programs such as the Cooperative Extension Master Logger Program, TN Wildlife Resources Agency Forestry Outreach, and other formal education programs.
13		Formal Education, Training, Outdoor Education, & Recreation	Develop brochures, land managers guides, posters, and other educational aids for the public that address conservation issues affecting target species and habitats.
14	Statewide	Formal Education, Training, Outdoor Education, & Recreation	Develop school curricula in conjunction with the TN Department of Education to emphasize local, state, & regional conservation issues affecting target species and habitats.
15	Regional	Formal Education, Training, Outdoor Education, & Recreation	Deliver formal presentations for classrooms, public-interest groups, academic conferences, clubs, and other groups to promote conservation issues affecting target species and habitats.
16	Regional	Monitoring	Develop a monitoring program to measure bioaccumulation of contaminants in target species (e.g. fish, mussels, turtles, birds, bats, etc.).
17	Statewide	Monitoring	Expand network of trained volunteers to conduct various types of environmental monitoring for target species and habitats (e.g. "Adopt A Stream" program, PIF bird counts, etc.).
18	Statewide	Monitoring	Develop GIS remote-sensing program to analyze statewide land cover changes, map habitats, evaluate land use practices, etc. at shorter intervals or in greater detail than current national-level programs.
19	Regional	Research	Conduct scientific surveys to discern the geographical distributions of lesser known target species.
20	Regional	Research	Conduct research on life history and ecological needs of target species to establish guidelines for determining population viability.
21		Research	Establish guidelines for determining population viability standards for target species (i.e. size, condition, & landscape context).
22	Regional	Research	Conduct research on problems (i.e. stresses and sources of stress) affecting target species and habitats.
23	Regional	Research	Conduct research to map karst systems, delineate underground watersheds, and identify above-ground linkages to subterranean habitats.
24	Regional	Compatible Resource Use	Utilize government funded incentive programs (e.g. CRP, EQIP, CSP, WRP, WHIP, FLEP, and LIP) to encourage private landowners to protect water quality for target species in critical units of aquatic, subterranean, or terrestrial habitats.
25	Regional	Compatible Resource Use	Utilize government funded incentive programs (e.g. FLEP, WHIP, CRP, EQIP, LIP, Forest Stewardship Program, and Forest Legacy Program) to encourage private landowners to restore and/or protect native forest systems for target species in critical units of aquatic, subterranean, or terrestrial habitats.
26		Compatible Resource Use	Utilize government-funded incentive programs such as WHIP, CRP, WRP, GRP, EQIP, CSP, FLEP, LIP, and rare species protection funding such as FWS Section 6 and other funds to manage or restore populations of target species in critical units of aquatic, subterranean, or terrestrial habitats.
27	Regional	Compatible Resource Use	Develop formal management agreements between private landowners, agencies, and non-governmental organizations to provide financial/technical assistance to manage target species within critical units of aquatic, subterranean, and terrestrial habitats (e.g. TWRA management agreements, USFWS Safe Harbor program, TNC cooperative management agreements, etc.).
28	Regional	Compatible Resource Use	Install exclusionary devices (e.g. gates, barriers, trespass detection equipment, etc.) to limit access to critical units of aquatic, subterranean, or terrestrial habitats for target species vulnerable to human disturbance.
29	Regional	Compatible Resource Use	Participate in environmental review procedures to prevent/mitigate construction of dams, impoundments, drainage ditches, levees, stormwater culverts, and other water diversionary structures that affect target species in critical units of aquatic, subterranean, or terrestrial habitats.
30	Regional	Compatible Resource Use	Participate in environmental review procedures to prevent/mitigate coal mining and oil & natural gas drilling activities that affect target species in critical units of aquatic, subterranean, and terrestrial habitats.
31	Statewide	Compatible Resource Use	Encourage adoption of more stringent sustainable forestry practices on state forests and other public lands that contain critical units of aquatic, subterranean, and terrestrial habitats.
32	Regional	Conservation Area Management	Participate in activities to establish/adjust state wildlife "sanctuaries" and/or federally designated critical habitat areas for target species on multi-use public/private conservation areas across the state.
33	Regional	Conservation Area Management	Develop and implement conservation plans for all public/private conservation areas across the state based on ecosystem-level management principles.
34	Regional	Conservation Area Management	Develop recreation management plans that outline strict guidelines on high-impact recreational uses on public/private conservation areas across the state.
35		Conservation Area Management	Discourage conversion of native habitats to semi/non-natural land types (e.g. pine plantations, golf courses, etc.) on public and private conservation areas across the state.
36	Regional	Control/Prevention of Invasive Exotic Species & Pathogens	Conduct rapid ecological assessments of key populations of target species and critical units of aquatic, subterranean, and terrestrial habitats most susceptible to invasive exotic species & pathogens.
37	Regional	Control/Prevention of Invasive Exotic Species & Pathogens	Implement integrated pest management practices to control or prevent invasive exotic species & pathogens from key populations of target species and critical units of aquatic, subterranean, and terrestrial habitats.
38	Regional	Control/Prevention of Invasive Exotic Species & Pathogens	Organize a TN Exotic Pest Animal Council to coordinate activities with the TN Exotic Pest Plant Council and serve as a clearinghouse of information & decisionmaking to control or prevent outbreaks of invasive exotic species.

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Action ID	Action Level	General Action	Specific Action Description
39	Statewide	Control/Prevention of Invasive Exotic Species & Pathogens	Establish a central GIS database to track occurrences of severe category invasive exotic species and maintain information on control measures & current management efforts statewide.
40	Regional	Control/Prevention of Invasive Exotic Species & Pathogens	Support programs that advocate usage of native or non-invasive exotic plants in ornamental horticulture, erosion control, and wildlife habitat plantings.
41	Regional	Habitat/Natural Processes Restoration	Reintroduce fire via prescribed burning into fire-dependent grassland & woodland systems within critical units of terrestrial habitats.
42	Regional	Habitat/Natural Processes Restoration	Reclaim abandoned coal mines and streams affected by acid mine drainage within critical units of aquatic, subterranean, and terrestrial habitats.
43	Regional	Habitat/Natural Processes Restoration	Restore degraded/converted wetland systems within critical units of aquatic, subterranean, and terrestrial habitats.
44	Regional	Habitat/Natural Processes Restoration	Restore in-stream flows and physical structure to channelized or impounded streams within critical units of aquatic, subterranean, and terrestrial habitats.
45	Regional	Habitat/Natural Processes Restoration	Restore degraded forests and pine plantations to appropriate natural ecological systems in or near critical units of aquatic, subterranean, and terrestrial habitats.
46	Regional	Habitat/Natural Processes Restoration	Restore pastures and other agricultural lands to appropriate natural ecological systems in or near critical units of aquatic, subterranean, and terrestrial habitats.
47	Regional	Habitat/Natural Processes Restoration	Remove or modify physical barriers that disrupt habitat/population connectivity for target species within critical units of aquatic, subterranean, and terrestrial habitats.
48	Regional	Species Restoration	Reintroduce extirpated and historic populations of priority species to appropriate habitats across the state.
49	Statewide	Species Restoration	Utilize ex-situ conservation methods (e.g. captive breeding, gene banking, etc.) to conserve populations of target species on the verge of rangewide extinction or local extinction of unique genotypes.
50	Statewide	Species Restoration	Provide funding to permitted institutions/individuals for rehabilitation of priority target species across the state.
51	Statewide	Species Restoration	Establish a freshwater mollusc propagation facility to increase populations of mussels and aquatic snails for habitat reintroduction.
52	Statewide	Alliances & Partnerships	Develop strategic alliance with Farm Bureau, Natural Resource Conservation Service, Farm Service Agency, TN Division of Water Pollution Control, Cooperative Extension, and other institutions to improve agricultural and animal production industries that affect target species and habitats.
53	Statewide	Alliances & Partnerships	Develop strategic alliance with U.S. Army Corp of Engineers, TN Valley Authority, water utility boards, and other institutions to address water management issues that affect target species and habitats.
54	Regional	Alliances & Partnerships	Develop strategic alliance with TN Dept. of Transportation, county mayors, municipalities, city/county planners, private developers and others to address urban and rural development practices that affect target species and habitats.
55	Regional	Alliances & Partnerships	Develop strategic alliance with TN Division of Forestry, TN Forestry Association, U.S. Forest Service, private timber companies, non-governmental organizations, universities, and other forest resource managers to address forestry practices that affect target species and habitats.
56	Statewide	Alliances & Partnerships	Develop strategic alliance with TN Division of Geology, Office of Surface Mining, U.S. Geological Survey, TN Oil & Gas Association, private companies, and other institutions to address mining and drilling issues that affect target species and habitats.
57	Statewide	Alliances & Partnerships	Develop strategic alliance with the U.S. Environmental Protection Agency, TN Dept. of Environment and Conservation, non-governmental organizations, and other related environmental regulatory agencies to address air and water quality issues affecting target species and habitats.
58	Statewide	Alliances & Partnerships	Develop faunal and/or habitat working groups (e.g. bat working group, cave working group, Partners In Flight/TN Ornithological Society working group, etc.) composed of academics, government and non-government biologists, & others to identify research issues, conduct research, fill data gaps, and disperse scientific information.
59	Statewide	Alliances & Partnerships	Partner with TN Division of Forestry, TN Wildlife Resources Agency, TN Division of Natural Heritage, TN State Parks, U.S. Forest Service, U.S. Fish & Wildlife Service, The Nature Conservancy, and other institutions to establish a statewide burn crew to conduct prescribed burns in fire-dependent grassland & woodland habitats.
60	Regional	Alliances & Partnerships	Develop strategic alliances with state/federal agencies, non-governmental organizations, stakeholders, and other groups focused on improvement of regional landscapes or special natural resources that contain target species in need of conservation (e.g. Alliance for the Cumberlands, Mississippi River Corridor, Cumberland Region Tomorrow, cave conservation groups, etc.).
61	Statewide	Alliances & Partnerships	Partner with state/federal agencies, non-governmental organizations, and various institutions in other states/countries to develop conservation strategies to manage wide-ranging target species and/or abate problems affecting species and habitats of regional/international concern (e.g. U.S. Fish & Wildlife Service Joint Ventures, international partnerships for neo-tropical migratory birds, Southeast Aquatic Resource Partnership, etc.).
62	Statewide	Conservation Finance	Establish a private capital conservation fund to finance and/or provide leverage for priority land acquisition deals across the state.
63	Regional	Conservation Finance	Solicit donations from private individuals and foundations for conservation work being conducted by various state/federal agencies and non-governmental organizations.
64	Statewide	Conservation Finance	Incorporate network of trained volunteers within state agencies as "in-kind" services match for federal funds.
65	Statewide	Institutional Improvement	Increase staffing and funding of state agencies and local offices of federal agencies responsible for managing target species/habitats or monitoring environmental quality.
66	Statewide	Institutional Improvement	Increase staffing and funding of non-governmental organizations that either manage or assist with the protection of target species and habitats.
67	Regional	Institutional Improvement	Create opportunities for cost-shared positions among state agencies, municipal/county governments, non-governmental organizations, and/or other institutions to increase the number of biological staff working on protection of target species and habitats.
68	Regional	Conservation Enterprises	Develop forest banking programs for forest systems at high risk of destruction or degradation within critical units of aquatic, subterranean, or terrestrial habitats.
69	Statewide	Conservation Enterprises	Create ecotourism-based local economies to deter development or natural resource extraction pressures in economically depressed areas that contain critical units of aquatic, subterranean, or terrestrial habitats.
70	Regional	Market Forces	Encourage municipal & county governments to subsidize/offer additional incentives to developers that utilize "green" methods of construction, design, and land-use planning in large residential or commercial developments.
72	Statewide	Compliance & Enforcement	Develop multi-agency network of professional aquatic biologists to assist TN Div. of Water Pollution Control in gathering documentation and supporting evidence to enforce existing water quality laws.
73	Regional	Compliance & Enforcement	Increase compliance monitoring of aquatic resource alteration permits, storm water, & other permits within critical units of aquatic and subterranean habitats.
74	Statewide	Compliance & Enforcement	Work with TN Wildlife Resources Agency and U.S. Fish & Wildlife Service to enforce compliance with rules and other stipulations for scientific collector permits and commercial licenses.
75	Statewide	Compliance & Enforcement	Provide TWRA wildlife officers with non-game funding to assist with compliance and enforcement of state laws protecting target species and habitats.
76	Regional	Land-use Planning & Zoning	Participate in the review and/or revision of county urban growth management plans.
77	Regional	Land-use Planning & Zoning	Encourage municipal and county governments to adopt zoning ordinances that limit or regulate development within critical units of aquatic, subterranean, and terrestrial habitats.
78	Statewide	Land-use Planning & Zoning	Provide funding/resources for the completion of the state's property owner base mapping project for counties that contain critical units of aquatic, subterranean, and terrestrial habitats.
79	Statewide	Legislation	Propose/support state legislation to remove or prevent passage of private legislative acts that negatively effect target species and habitats.
80	Statewide	Legislation	Propose/support state and federal legislation to create dedicated funding sources for conservation programs, acquisition, and/or restoration of critical units of aquatic, subterranean, and terrestrial habitats.
81	Statewide	Legislation	Propose/support state legislation to restrict importation or usage of severe category invasive exotic animal and plant species in the state.
82	Statewide	Legislation	Propose/support state legislation to strengthen penalties for laws regarding poaching, illegal collection, or killing of target species and for violation of current environmental quality or habitat destruction laws.

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Action ID	Action Level	General Action	Specific Action Description
83	Statewide	Legislation	Propose/support federal legislation to support CITES and to increase penalties for illegal trade in wildlife.
84	Statewide	Legislation	Propose/support state & federal legislation to modify current "greenbelt" laws to include tax breaks to landowners for protection of target species and habitats or vital ecosystem services such as forest/watershed protection.
85	Statewide	Legislation	Propose/support federal legislation to fund a national or regional conservation initiative regarding aquatic resource protection (e.g. National/Southeast Aquatic Resources Partnership).
86	Statewide	Legislation	Propose/support state legislation urging the federal Office of Surface Mining to designate critical units of aquatic, subterranean, and terrestrial habitats as "lands unsuitable for mining".
87	Statewide	Legislation	Propose/support federal legislation to encourage greater public participation in federal incentive programs (e.g. CRP, EQIP, LIP, WHIP, WRP, etc.) by revamping current spending limits and cost-share matches for private landowners.
88	Statewide	Policies & Regulations	Enact more stringent policies & regulations regarding issuance of scientific collector permits and commercial licenses for target species within critical units of aquatic, subterranean, and terrestrial habitats.
89		Policies & Regulations	Review current policies & regulations regarding commercial usage of non-game species.
90	Regional	Policies & Regulations	Encourage TN Valley Authority and U.S. Army Corps of Engineers to review policies & regulations regarding operation of dams/impoundments or other water diversionary structures that affect target species and habitats.
91	Statewide	Policies & Regulations	Encourage the federal Office of Surface Mining to designate critical units of aquatic, subterranean, and terrestrial habitats as "lands unsuitable for mining" under current federal policy guidelines.
92	Statewide	Standards	Develop standards for instream-flow regimes that establish minimum water levels required for target species during critical periods and for maintenance of habitat quality.
93	Statewide	Standards	Encourage state/federal agencies to increase clean air standards regarding sulfur-dioxide emissions and other pollutants.
94	Regional	Standards	Develop more stringent standards for forestry "best management practices" based on regional differences in landform and habitats.
95	Statewide	Standards	Evaluate agency standards for conducting environmental reviews of projects that potentially affect target species and habitats.
96	Statewide	Standards	Develop more stringent standards regarding permits for construction projects that potentially affect water quality and/or alter habitat.
97	Statewide	Standards	Evaluate agency standards for reviewing status of state endangered, threatened, proposed endangered, proposed threatened, and "deemed in need of management" species.

Tennessee CWCS Hierarchy of Conservation Actions															
Category	Class	General Action	General Action Description	Specific Action #1	Specific Action #2	Specific Action #3	Specific Action #4	Specific Action #5	Specific Action #6	Specific Action #7	Specific Action #8	Specific Action #9	Specific Action #10	Action Steps	
Conservation Science, Stewardship & Protection	Habitat Acquisition	Fee-title Ownership	Acquire fee-title ownership of critical units of aquatic, subterranean, & terrestrial habitats.	Use federal/state/private funding sources to acquire critical units of aquatic, subterranean, and terrestrial habitats which provide species protection, buffering, connectivity, and/or perpetuation of natural processes.	Revive TN Protection Planning Committee to coordinate land acquisition priorities among state/federal agencies and non-governmental organizations.									To be developed	
		Permanent Protective Easements	Acquire permanent protective easements on critical units of aquatic, subterranean, & terrestrial habitats.	Use federal/state/private funding sources to acquire permanent easements within critical units of aquatic, subterranean, and terrestrial habitats which provide species protection, buffering, connectivity, and/or perpetuation of natural processes.	Revive TN Protection Planning Committee to coordinate acquisition of permanent protective easements among state/federal agencies and non-governmental organizations.									To be developed	
	Information Collection & Dispersal	Communications & Public Relations	Develop communications & public relations programs that benefit target species and habitats.	Develop a multi-media public outreach campaign to promote the availability of government-funded incentive programs to private landowners.	Develop a multi-media public outreach campaign to promote awareness of the negative effects of invasive exotic species.	Develop a multi-media public outreach campaign to promote the need for conserving rare, threatened, or endangered species and habitats.									To be developed
		Conservation Planning	Conduct planning to establish conservation objectives and actions that benefit target species and habitats at state or regional scales.	Develop/participate in regional conservation planning initiatives sponsored by federal and state agencies (e.g. TDEC Recreation Management Plan, State Park planning, State Forest planning, TWRA regional planning, USFWS Joint Venture planning, TVA Reservoir Operations study, etc.)	Develop/participate in regional planning initiatives sponsored by non-governmental organizations or public/private partnerships (e.g. TNC ecoregional planning, WWF watershed planning, Cumberland Region Tomorrow - Community Quality Growth Planning, Partners In Flight, Audubon Important Bird Areas, Habitat Conservation Plans, etc.).	Develop central database to combine/reconcile/maintain state & federal agency, non-governmental organization, and university sources of data for target species and habitats.									To be developed
	Formal Education, Training, Outdoor Education, & Recreation	Support formal education, training, outdoor education, and/or recreation programs that benefit target species and habitats.	Develop outdoor education and recreation programs that inform the public about the effects of recreational vehicles and various other recreational uses on target species and habitats.	Incorporate information about protection of target species and habitats into forestry training programs such as the Cooperative Extension Master Logger Program, TN Wildlife Resources Agency Forestry Outreach, and other formal education programs.	Develop school curricula in conjunction with the TN Department of Education to emphasize local, state, & regional conservation issues affecting target species and habitats.	Deliver formal presentations for classrooms, public-interest groups, academic conferences, clubs, and other groups to promote conservation issues affecting target species and habitats.								To be developed	

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		Monitoring	Develop programs to monitor environmental quality of habitats and/or biological monitoring of species populations.	Develop a monitoring program to measure bioaccumulation of contaminants in target species (e.g. fish, mussels, turtles, birds, bats, etc.).	Expand network of trained volunteers to conduct various types of environmental monitoring for target species and habitats (e.g. "Adopt A Stream" program, PIF bird counts, etc.).	Develop GIS remote-sensing program to analyze statewide land cover changes, map habitats, evaluate land use practices, etc. at shorter intervals or in greater detail than current national-level programs.								To be developed
		Research	Facilitate research programs that benefit target species and habitats.	Conduct scientific surveys to discern the geographical distributions of lesser known target species.	Conduct research on life history and ecological needs of target species to establish guidelines for determining population viability.	Conduct research on problems (i.e. stresses and sources of stress) affecting target species and habitats.	Conduct research to map karst systems, delineate underground watersheds, and identify above-ground linkages to subterranean habitats.							To be developed
	Management & Restoration of Species and Habitats	Compatible Resource Use	Encourage compatible resource uses on public and private lands that contain target species and habitats.	Utilize government funded incentive programs (e.g. CRP, EQIP, CSP, WRP, WHIP, FLEP, and LIP) to encourage private landowners to protect water quality for target species in critical units of aquatic, subterranean, or terrestrial habitats.	Utilize government funded incentive programs (e.g. FLEP, WHIP, CRP, EQIP, LIP, Forest Stewardship Program, and Forest Legacy Program) to encourage private landowners to restore and/or protect native forest systems for target species in critical units of aquatic, subterranean, or terrestrial habitats.	Develop formal management agreements between private landowners, agencies, and non-governmental organizations to provide financial/technical assistance to manage target species within critical units of aquatic, subterranean, and terrestrial habitats (e.g. TWRA management agreements, USFWS Safe Harbor program, TNC cooperative management agreements, etc.).	Install exclusionary devices (e.g. gates, barriers, trespass detection equipment, etc.) to limit access to critical units of aquatic, subterranean, or terrestrial habitats for target species vulnerable to human disturbance.	Participate in environmental review procedures to prevent/mitigate construction of dams, impoundments, drainage ditches, levees, stormwater culverts, and other water diversionary structures that affect target species in critical units of aquatic, subterranean, or terrestrial habitats.	Participate in environmental review procedures to prevent/mitigate coal mining and oil & natural gas drilling activities that affect target species in critical units of aquatic, subterranean, and terrestrial habitats.	Encourage adoption of more stringent sustainable forestry practices on state forests and other public lands that contain critical units of aquatic, subterranean, and terrestrial habitats.				To be developed
		Conservation Area Management	Implement management practices that benefit target species and habitats on public and private conservation areas.	Participate in activities to establish/adjust state wildlife "sanctuaries" and/or federally designated critical habitat areas for target species on multi-use public/private conservation areas across the state.	Develop and implement conservation plans for all public/private conservation areas across the state based on ecosystem-level management principles.	Develop recreation management plans that outline strict guidelines on high-impact recreational uses on public/private conservation areas across the state.								To be developed
		Control/Prevention of Invasive Exotic Species & Pathogens	Implement management practices that control or prevent occurrences of invasive exotic species & pathogens on critical units of aquatic, subterranean, and terrestrial habitats.	Conduct rapid ecological assessments of key populations of target species and critical units of aquatic, subterranean, and terrestrial habitats most susceptible to invasive exotic species & pathogens.	Implement integrated pest management practices to control or prevent invasive exotic species & pathogens from key populations of target species and critical units of aquatic, subterranean, and terrestrial habitats.	Organize a TN Exotic Pest Animal Council to coordinate activities with the TN Exotic Pest Plant Council and serve as a clearinghouse of information & decisionmaking to control or prevent outbreaks of invasive exotic species.	Establish a central GIS database to track occurrences of severe category invasive exotic species and maintain information on control measures & current management efforts statewide.	Support programs that advocate usage of native or non-invasive exotic plants in ornamental horticulture, erosion control, and wildlife habitat plantings.						To be developed

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		Habitat/Natural Processes Restoration	Restore critical units of aquatic, subterranean, and terrestrial habitats and/or natural processes that benefit target species.	Reintroduce fire via prescribed burning into fire-dependent grassland & woodland systems within critical units of terrestrial habitats.	Reclaim abandoned coal mines and streams affected by acid mine drainage within critical units of aquatic, subterranean, and terrestrial habitats.	Restore degraded/converted wetland systems within critical units of aquatic, subterranean, and terrestrial habitats.	Restore in-stream flows and physical structure to channelized or impounded streams within critical units of aquatic, subterranean, and terrestrial habitats.	Restore degraded forests and pine plantations to appropriate natural ecological systems in or near critical units of aquatic, subterranean, and terrestrial habitats.	Restore pastures and other agricultural lands to appropriate natural ecological systems in or near critical units of aquatic, subterranean, and terrestrial habitats.	Remove or modify physical barriers that disrupt habitat/population connectivity for target species within critical units of aquatic, subterranean, and terrestrial habitats.				To be developed
		Species Restoration	Restore populations of target species on critical units of aquatic, subterranean, and terrestrial habitats.	Utilize federal/state funding sources (e.g. USFWS Section 6 Recovery Plan funding, etc.) to reintroduce extirpated and historic populations of priority species to appropriate habitats across the state.	Utilize ex-situ conservation methods (e.g. captive breeding, gene banking, etc.) to conserve populations of target species on the verge of rangewide extinction or local extinction of unique genotypes.	Provide funding to permitted institutions/individuals for rehabilitation of priority target species across the state.	Establish a freshwater mollusc propagation facility to increase populations of mussels and aquatic snails for habitat reintroduction.							To be developed
Conservation Financial, Legal & Political Development	Capacity Building	Alliances & Partnerships	Develop strategic alliances and/or formal partnerships among public & private institutions that benefit target species and habitats.	Develop strategic alliance with Farm Bureau, Natural Resource Conservation Service, Farm Service Agency, TN Division of Water Pollution Control, Cooperative Extension, and other institutions to improve agricultural and animal production industries that affect target species and habitats.	Develop strategic alliance with U.S. Army Corp of Engineers, TN Valley Authority, water utility boards, and other institutions to address water management issues that affect target species and habitats.	Develop strategic alliance with TN Dept. of Transportation, county mayors, municipalities, city/county planners, private developers and others to address urban and rural development practices that affect target species and habitats.	Develop strategic alliance with TN Division of Forestry, TN Forestry Association, U.S. Forest Service, private timber companies, non-governmental organizations, universities, and other forest resource managers to address forestry practices that affect target species and habitats.	Develop strategic alliance with TN Division of Geology, Office of Surface Mining, U.S. Geological Survey, TN Oil & Gas Association, private companies, and other institutions to address mining and drilling issues that affect target species and habitats.	Develop strategic alliance with the U.S. Environmental Protection Agency, TN Dept. of Environment and Conservation, non-governmental organizations, and other related environmental regulatory agencies to address air and water quality issues affecting target species and habitats.	Develop faunal and/or habitat working groups (e.g. bat working group, cave working group, Partners In Flight/TN Ornithological Society working group, etc.) composed of academics, government and non-government biologists, & others to identify research issues, conduct research, fill data gaps, and disperse scientific information.	Partner with TN Division of Forestry, TN Wildlife Resources Agency, TN Division of Natural Heritage, TN State Parks, U.S. Forest Service, U.S. Fish & Wildlife Service, The Nature Conservancy, and other institutions to establish a statewide burn crew to conduct prescribed burns in fire-dependent grassland & woodland habitats.	Develop strategic alliances with state/federal agencies, non-governmental organizations, stakeholders, and other groups focused on improvement of regional landscapes or special natural resources that contain target species in need of conservation (e.g. Alliance for the Cumberlands, Mississippi River Corridor, Cumberland Region Tomorrow, cave conservation groups, etc.).	Partner with state/federal agencies, non-governmental organizations, and various institutions in other states/countries to develop conservation strategies to manage wide-ranging target species and/or abate problems affecting species and habitats of regional/international concern (e.g. U.S. Fish & Wildlife Service Joint Ventures, international partnerships for neo-tropical migratory birds, Southeast Aquatic Resource Partnership, etc.).	To be developed
		Conservation Finance	Develop new sources of conservation funding to increase capacity of federal/state agencies, non-governmental organizations and, other institutions to benefit target species and habitats.	Establish a private capital conservation fund to finance and/or provide leverage for priority land acquisition deals across the state.	Solicit donations from private individuals and foundations for conservation work being conducted by various state/federal agencies and non-governmental organizations.	Incorporate network of trained volunteers within state agencies as "in-kind" services match for federal funds.								To be developed
		Institutional Improvement	Increase internal capacity of public/private institutions to benefit target species and habitats.	Increase staffing and funding of state agencies and local offices of federal agencies responsible for managing target species/habitats or monitoring environmental quality.	Increase staffing and funding of non-governmental organizations that either manage or assist with the protection of target species and habitats.	Create opportunities for cost-shared positions among state agencies, municipal/county governments, non-governmental organizations, and/or other institutions to increase the number of biological staff working on protection of target species and habitats.								To be developed

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Category	Class	General Action	General Action Description	Specific Action #1	Specific Action #2	Specific Action #3	Specific Action #4	Specific Action #5	Specific Action #6	Specific Action #7	Specific Action #8	Specific Action #9	Specific Action #10	Action Steps	
	Commercial Incentives	Conservation Enterprises	Develop commercial enterprises that provide financial incentives for private individuals, industries, and/or small businesses to benefit target species and habitats.	Develop forest banking programs for forest systems at high risk of destruction or degradation within critical units of aquatic, subterranean, or terrestrial habitats.	Create ecotourism-based local economies to deter development or natural resource extraction pressures in economically depressed areas that contain critical units of aquatic, subterranean, or terrestrial habitats.									To be developed	
		Market Forces	Develop marketing strategies to improve patterns of production and consumption of goods and services for the benefit of target species and habitats.	Encourage municipal & county governments to subsidize/offer additional incentives to developers that utilize "green" methods of construction, design, and land-use planning in large residential or commercial developments.											To be developed
Law & Policy	Compliance & Enforcement	Improve compliance & enforcement programs that benefit target species and habitats.	Develop multi-agency network of professional aquatic biologists to assist TN Div. of Water Pollution Control in gathering documentation and supporting evidence to enforce existing water quality laws.	Increase compliance monitoring of aquatic resource alteration permits, storm water, & other permits within critical units of aquatic and subterranean habitats.	Work with TN Wildlife Resources Agency and U.S. Fish & Wildlife Service to enforce compliance with rules and other stipulations for scientific collector permits and commercial licenses.	Provide TWRA wildlife officers with non-game funding to assist with compliance and enforcement of state laws protecting target species and habitats.								To be developed	
		Land-use Planning & Zoning	Develop land-use planning & zoning ordinances that benefit target species and habitats.	Participate in the review and/or revision of county urban growth management plans.	Encourage municipal and county governments to adopt zoning ordinances that limit or regulate development within critical units of aquatic, subterranean, and terrestrial habitats.	Provide funding/resources for the completion of the state's property owner base mapping project for counties that contain critical units of aquatic, subterranean, and terrestrial habitats.								To be developed	
		Legislation	Enact legislation to benefit target species and habitats.	Propose/support state legislation to remove or prevent passage of private legislative acts that negatively affect target species and habitats.	Propose/support state and federal legislation to create dedicated funding sources for conservation programs, acquisition, and/or restoration of critical units of aquatic, subterranean, and terrestrial habitats.	Propose/support state legislation to restrict importation or usage of severe category invasive exotic animal and plant species in the state.	Propose/support state legislation to strengthen penalties for laws regarding poaching, illegal collection, or killing of target species and for violation of current environmental quality or habitat destruction laws.	Propose/support federal legislation to support CITES and to increase penalties for illegal trade in wildlife.	Propose/support state & federal legislation to modify current "greenbelt" laws to include tax breaks to landowners for protection of target species and habitats or vital ecosystem services such as forest/watershed protection.	Propose/support federal legislation to fund a national or regional conservation initiative regarding aquatic resource protection (e.g. National/Southeast Aquatic Resources Partnership).	Propose/support federal legislation to encourage greater public participation in federal incentive programs (e.g. CRP, EQIP, LIP, WHIP, WRP, etc.) by revamping current spending limits and cost-share matches for private landowners.				To be developed
		Policies & Regulations	Improve policies & regulations that benefit target species and habitats.	Enact more stringent policies & regulations regarding issuance of scientific collector permits and commercial licenses for target species within critical units of aquatic, subterranean, and terrestrial habitats.	Encourage TN Valley Authority and U.S. Army Corps of Engineers to review policies & regulations regarding operation of dams/impoundments or other water diversionary structures that affect target species and habitats.	Encourage the federal Office of Surface Mining to designate critical units of aquatic, subterranean, and terrestrial habitats as "lands unsuitable for mining" under current federal policy guidelines.									To be developed

Tennessee CWCS Hierarchy of Conservation Actions														
Category	Class	General Action	General Action Description	Specific Action #1	Specific Action #2	Specific Action #3	Specific Action #4	Specific Action #5	Specific Action #6	Specific Action #7	Specific Action #8	Specific Action #9	Specific Action #10	Action Steps
		Standards	Improve environmental standards that benefit target species and habitats.	Develop standards for instream-flow regimes that establish minimum water levels required for target species during critical periods and for maintenance of habitat quality.	Encourage state/federal agencies to increase clean air standards regarding sulfur-dioxide emissions and other pollutants.	Develop more stringent standards for forestry "best management practices" based on regional differences in landform and habitats.	Evaluate agency standards for conducting environmental reviews of projects that potentially affect target species and habitats.	Develop more stringent standards regarding permits for construction projects that potentially affect water quality and/or alter habitat.	Evaluate agency standards for reviewing status of state endangered, threatened, proposed endangered, and "deemed in need of management" species.					To be developed

Reg.	Source of Stress	# T1 Tgts	Stress-Rarity Score	Stress Abate. Score	Specific Action Reference Codes (values are stress abatement scores)																															
					62	63	64	65	66	67	68	69	70	72	73	74	75	76	77	78	80	81	82	83	84	85	86	87	88	90	91	92	93	94	95	96
CPM	Incompatible Species Management Practices	4	22.6	326.6	24	33	36	27	27	24	15				24	33	45			33	27	33			60										51	
CPM	Secondary Home/Resort Development	1	18.9	248.0	24	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27											39	33	51	
CPM	Excessive Competition/Predation by Native Species	6	15.4	141.4		33	36	27	27	24					24			45																	51	
CPM	Illegal Hunting/Fishing/Collection/Killing	6	11.5	136.2	12	33	36	27	27	24	10				33	40	24		45	52	40	27			48									51		
CPM	Construction of Ditches/Dikes/Drainage/Diversion Systems	3	10.8	166.0	12	33	36	27	27	24	15		27	30	20	36	27	33	45	26	33	27		44			44				39	33	51			
CPM	Parasites/Pathogens	1	9.8	69.6		33	36	27	27	24					20	24		45																51		
CPM	Oil or Natural Gas Drilling	1	6.0	62.9	12	33	36	27	27	24	15				20	36		33	45	26	33													51		
CPM	Recreational Use of Habitats (non-vehicular)	1	1.9	22.6	18	33	36	27	27	24	20				30	36		45	39	27						22								51		
RV	Primary Residential Development	58	589.7	8,120.2	24	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27	33									33	51			
RV	Commercial/Industrial Development	43	394.8	5,302.1	24	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27	22											51		
RV	Incompatible Forestry Practices	52	378.1	5,559.4	24	33	36	27	27	24	32	15	27	30	20	36		33	45	26	33	27								36				51		
RV	Agricultural Conversion	52	374.2	4,857.2	24	33	36	27	27	24	15					36		33	45	26	33	27	44											51		
RV	Incompatible Grazing/Pasture Management Practices	24	163.1	2,167.7	24	33	36	27	27	24	15		27	30	20	36		33	45	26	33	27	44											51		
RV	Incompatible Row Crop Agricultural Practices	24	137.1	1,825.6	18	33	36	27	27	24	15		27	30	20	36		33	45	26	33	27	44											51		
RV	Construction of Roads/Railroads/Utilities	15	75.7	1,140.3	12	33	36	27	27	24	15	18			20	48	27	33	45	26	33	27	27								39	33	51			
RV	Fire Suppression	10	52.2	635.3	18	33	36	27	27	24	16					24		33	45		33													51		
RV	Excessive Competition/Predation by Native Species	9	29.2	268.5		33	36	27	27	24					24			45																	51	
RV	Incompatible Mining Practices	7	28.2	377.3	12	33	36	27	27	24	15				20	36		33	45	26	33	27	40	22			40				39			51		
RV	Construction of Ditches/Dikes/Drainage/Diversion Systems	4	20.9	317.5	12	33	36	27	27	24	15		27	30	20	36	27	33	45	26	33	27	44			44				39	33	51				
RV	Incompatible Species Management Practices	3	14.9	204.8	24	33	36	27	27	24	15				24		33	45			33	27	33	60										51		
RV	Forest Type Conversion	2	12.7	181.0	24	33	36	27	27	24	24	15	27	30		36		33	45	26	33	27							36					51		
RV	Illegal Hunting/Fishing/Collection/Killing	6	11.5	136.2	12	33	36	27	27	24	10				33	40	24		45	52	40	27			48										51	
RV	Parasites/Pathogens	1	9.8	69.6		33	36	27	27	24					20	24		45																	51	
RV	Industrial Discharge	1	8.5	102.4		33	36	27	27	24	15	18	36	40	20	36	27	33	45	26	33	27										39	33	51		
RV	Municipal Wastewater Treatment/Stormwater Runoff	1	8.0	100.5		33	36	27	27	24	15	18	36	40	48	27	33	45	26	33	27											39	33	51		
RV	Recreational Use of Habitats (non-vehicular)	1	1.9	22.6	18	33	36	27	27	24	20				30	36		45	39	27					22										51	
SBR	Incompatible Forestry Practices	95	904.3	13,446.8	24	33	36	27	27	24	32	15	27	30	20	36		33	45	26	33	27								36				51		
SBR	Acid Rain	25	313.7	2,345.7		33	36	27	27	24					24			45															40			51
SBR	Primary Residential Development	38	301.3	4,148.6	24	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27	33										33	51		
SBR	Commercial/Industrial Development	33	253.5	3,404.1	24	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27	22												51	
SBR	Invasive Exotic Species	28	179.9	2,588.6	12	33	36	27	27	24	10	12			20	24		45	48		33	27													51	
SBR	Agricultural Conversion	26	126.4	1,640.8	24	33	36	27	27	24	15				36		33	45	26	33	27	44													51	
SBR	Incompatible Grazing/Pasture Management Practices	16	107.1	1,425.0	24	33	36	27	27	24	15		27	30	20	36		33	45	26	33	27	44												51	
SBR	Incompatible Row Crop Agricultural Practices	16	102.3	1,354.6	18	33	36	27	27	24	15		27	30	20	36		33	45	26	33	27	44												51	
SBR	Construction of Roads/Railroads/Utilities	16	79.0	1,189.0	12	33	36	27	27	24	15	18			20	48	27	33	45	26	33	27									39	33	51			
SBR	Fire Suppression	8	51.3	624.7	18	33	36	27	27	24	16					24		33	45		33														51	
SBR	Secondary Home/Resort Development	11	43.8	575.9	24	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27										39	33	51		
SBR	Construction of Ditches/Dikes/Drainage/Diversion Systems	4	42.8	642.6	12	33	36	27	27	24	15				20	36	27	33	45	26	33	27	44			44				39	33	51				
SBR	Illegal Hunting/Fishing/Collection/Killing	8	29.0	344.1	12	33	36	27	27	24	10				33	40	24		45	52	40	27			48										51	
SBR	Excessive Competition/Predation by Native Species	7	27.3	251.3		33	36	27	27	24					24			45																		51
SBR	Parasites/Pathogens	2	20.2	142.5		33	36	27	27	24					20	24		45																		51
SBR	Incompatible Species Management Practices	3	14.9	204.8	24	33	36	27	27	24	15				24		33	45			33	27	33	60											51	
SBR	Recreational Use of Habitats (non-vehicular)	2	4.5	54.7	18	33	36	27	27	24	20				30	36		45	39	27					22											51
SBR	Residential Sewage/Septic Systems	1	4.3	46.5		33	36	27	27	24	15	18	18	20		48	27	33	45		33	27	33								39	33	51			
SBR	Municipal Wastewater Treatment/Stormwater Runoff	1	4.0	50.2		33	36	27	27	24	15	18	36	40		48	27	33	45	26	33	27										39	33	51		

Reg.	Source of Stress	# T1 Tgts	Stress-Rarity Score	Stress Abate. Score	Specific Action Reference Codes (values are stress abatement scores)																																											
					63	64	65	66	67	68	69	70	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	90	91	92	94	95	96	97												
MS	Channelization of Rivers/Streams	20	292.9	4,198.4	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44												33	39	33	51													
MS	Incompatible Row Crop Agricultural Practices	23	261.2	3,680.0	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44															51													
MS	Industrial Discharge	10	140.0	1,686.8	33	36	27	27	24	15	18	36	40	20	36	27	33	45	26	33	27												39	33	51													
MS	Municipal Wastewater Treatment/Stormwater Runoff	9	68.7	866.5	33	36	27	27	24	15	18	36	40	48	27	33	45	26	33	27													39	33	51													
MS	Incompatible Grazing/Pasture Management Practices	10	63.3	902.1	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44														51														
MS	Incompatible Forestry Practices	1	60.0	900.6	33	36	27	27	24	32	15	27	30	20	36	33	45	26	33	27											36			51														
MS	Construction of Ditches/Dikes/Drainage/Diversion Systems	2	39.8	630.5	33	36	27	27	24	15	27	30	20	36	27	33	45	26	33	27	44								44			39	33	51														
MS	Construction of Dams/Impoundments	3	22.8	338.5	33	36	27	27	24	15				20	48	27	33	45	26	33	27	44								44			39	33	51													
MS	Residential Sewage/Septic Systems	1	13.4	146.2	33	36	27	27	24	15	18	18	20		48	27	33	45																39	33	51												
MS	Illegal Hunting/Fishing/Collection/Killing	2	10.3	121.8	33	36	27	27	24	10				33	40	24																				51												
MS	Invasive Exotic Species	2	6.0	86.4	33	36	27	27	24	10	12			20	24																					51												
MS	Excessive Surfacewater Withdrawal	1	3.4	50.9	33	36	27	27	24	10	18	27	30	20	36	27	33	45	26	33	27	22								44			39	33	51													
MS	Commercial Collection of Species	1	1.3	14.1	33	36	27	27	24	15				44	40	36																				51												
BR	Incompatible Grazing/Pasture Management Practices	10	100.3	1,435.2	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																51												
BR	Primary Residential Development	5	56.1	840.9	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33	27	33												39	33	51												
BR	Incompatible Forestry Practices	5	40.9	613.5	33	36	27	27	24	32	15	27	30	20	36	33	45	26	33	27											36					51												
BR	Residential Sewage/Septic Systems	2	15.9	174.4	33	36	27	27	24	15	18	18	20		48	27	33	45																		39	33	51										
BR	Municipal Wastewater Treatment/Stormwater Runoff	1	5.6	70.9	33	36	27	27	24	15	18	36	40	48	27	33	45	26	33	27																39	33	51										
CO	Incompatible Grazing/Pasture Management Practices	33	729.6	10,423.0	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																	51											
CO	Incompatible Row Crop Agricultural Practices	20	576.1	8,133.0	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																	51											
CO	Incompatible Forestry Practices	24	489.3	7,342.5	33	36	27	27	24	32	15	27	30	20	36	33	45	26	33	27													36				51											
CO	Residential Sewage/Septic Systems	16	341.5	3,735.8	33	36	27	27	24	15	18	18	20		48	27	33	45	26	33	27	33														39	33	51										
CO	Primary Residential Development	1	65.0	895.1	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27	33															33	51										
CO	Landfill Construction/Operation	1	39.4	476.0	33	36	27	27	24	15	12	27	30		48	27	33	45	26																		39	51										
CO	Invasive Exotic Species	1	28.0	403.2	33	36	27	27	24	10	12			20	24																							51										
CU	Incompatible Grazing/Pasture Management Practices	62	849.8	12,127.6	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																		51										
CU	Construction of Dams/Impoundments	49	696.3	10,125.8	33	36	27	27	24	15	27	30	20	48	27	33	45	26	33	27	44														44		39	33	51									
CU	Incompatible Mining Practices	53	629.7	8,785.4	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	40	22																40		39	51								
CU	Incompatible Row Crop Agricultural Practices	34	360.3	5,081.8	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																			51									
CU	Incompatible Forestry Practices	25	350.0	5,254.0	33	36	27	27	24	32	15	27	30	20	36	33	45	26	33	27																	36		51									
CU	Municipal Wastewater Treatment/Stormwater Runoff	27	342.8	4,322.6	33	36	27	27	24	15	18	36	40	48	27	33	45	26	33	27																		39	33	51								
CU	Residential Sewage/Septic Systems	13	184.9	2,023.2	33	36	27	27	24	15	18	18	20		48	27	33	45	26	33	27	33																39	33	51								
CU	Industrial Discharge	15	183.4	2,210.4	33	36	27	27	24	15	18	36	40	20	36	27	33	45	26	33	27																		39	33	51							
CU	Operation of Dams/Reservoirs	13	170.6	1,791.6	33	36	27	27	24	15					36																								60		44		51					
CU	Oil or Natural Gas Drilling	12	104.7	1,206.8	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27																					51								
CU	Excessive Surfacewater Withdrawal	6	96.3	1,426.4	33	36	27	27	24	10	18	27	30	20	36	27	33	45	26	33	27	22																	44		39	33	51					
CU	Excessive Groundwater Withdrawal	1	26.3	308.4	33	36	27	27	24	10	18				36	27	33	45																						33		39	33	51				
CU	Invasive Exotic Species	7	22.4	322.2	33	36	27	27	24	10	12			20	24																										51							
CU	Channelization of Rivers/Streams	4	19.8	277.4	33	36	27	27	24	15				20	36	33	45	26	33	27	44																			33		39	33	51				
CU	Illegal Hunting/Fishing/Collection/Killing	1	9.0	106.9	33	36	27	27	24	10				33	40	24																										51						
CU	Commercial Collection of Species	1	8.0	90.5	33	36	27	27	24	15				44	40	36																										51						
CU	Primary Residential Development	1	6.0	82.6	33	36	27	27	24	16	15	18			48	27	33	45	26	33	27	33																				33	51					
CU	Agricultural Conversion	1	5.3	72.2	33	36	27	27	24	15	27	30			36	33	45	26	33	27	44																						51					
CU	Construction of Roads/Railroads/Utilities	1	3.8	57.0	33	36	27	27	24	15	18				20	48	27	33	45	26																							39	33	51			
CU	Recreational Use of Habitats (non-vehicular)	1	1.9	22.6	33	36	27	27	24	20					30	36																												51				
TN	Incompatible Grazing/Pasture Management Practices	116	2,332.3	33,268.3	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																							51					
TN	Construction of Dams/Impoundments	73	1,325.2	19,338.8	33	36	27	27	24	15	27	30	20	48	27	33	45	26	33	27	44																						44		39	33	51	
TN	Incompatible Mining Practices	55	898.5	12,504.5	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	40	22																								40		39	51
TN	Incompatible Row Crop Agricultural Practices	61	878.8	12,408.7	33	36	27	27	24	15	27	30	20	36	33	45	26	33	27	44																										51		
TN	Incompatible Forestry Practices	46	784.9	11,774.9	33	36	27	27	24	32	15																																					

Reg.	Source of Stress	# T1 Tgts	Stress-Rarity Score	Stress Abate. Score	Specific Action Reference Codes (values are stress abatement scores)																								
					62	63	64	65	66	67	68	69	70	72	73	75	76	77	78	80	82	84	85	86	87	91	92	94	95
CUp	Primary Residential Development	4	77.8	1,166.3	24	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33	27	33				39	33	51
CUp	Residential Sewage/Septic Systems	5	72.2	789.7		33	36	27	27	24		15	18	18	20	48	27	33	45		33	27	33				39	33	51
CUp	Incompatible Grazing/Pasture Management Practices	5	56.3	808.3	24	33	36	27	27	24		15		27	30	20	36		33	45	26	33	27	44					51
CUp	Construction of Roads/Railroads/Utilities	1	36.8	578.8		33	36	27	27	24		15	18	36	40	20	48	27	33	45	26		27				39	33	51
CUp	Incompatible Forestry Practices	2	31.9	478.4	24	33	36	27	27	24	32	15		27	30	20	36		33	45	26	33	27			36		51	
CUp	Excessive Groundwater Withdrawal	1	6.0	70.5	12	33	36	27	27	24		10	18				36	27	33	45		33	27		33		39	33	51
NB	Residential Sewage/Septic Systems	3	45.9	502.6		33	36	27	27	24		15	18	18	20	48	27	33	45		33	27	33				39	33	51
NB	Primary Residential Development	2	45.3	678.8	24	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33	27	33				39	33	51
NB	Construction of Roads/Railroads/Utilities	1	36.8	578.8		33	36	27	27	24		15	18	36	40	20	48	27	33	45	26		27				39	33	51
NB	Incompatible Grazing/Pasture Management Practices	3	30.0	431.1	24	33	36	27	27	24		15		27	30	20	36		33	45	26	33	27	44					51
NB	Incompatible Forestry Practices	1	26.3	394.0	24	33	36	27	27	24	32	15		27	30	20	36		33	45	26	33	27			36		51	
NB	Excessive Groundwater Withdrawal	1	6.0	70.5	12	33	36	27	27	24		10	18				36	27	33	45		33	27		33		39	33	51
NB	Municipal Wastewater Treatment/Stormwater Runoff	1	5.6	70.9		33	36	27	27	24		15	18	36	40	48	27	33	45	26	33	27					39	33	51
C-R	Incompatible Forestry Practices	13	257.2	3,860.4	24	33	36	27	27	24	32	15		27	30	20	36		33	45	26	33	27			36		51	
C-R	Incompatible Grazing/Pasture Management Practices	10	237.9	3,418.5	24	33	36	27	27	24		15		27	30	20	36		33	45	26	33	27	44					51
C-R	Residential Sewage/Septic Systems	12	208.6	2,282.0		33	36	27	27	24		15	18	18	20	48	27	33	45		33	27	33				39	33	51
C-R	Municipal Wastewater Treatment/Stormwater Runoff	3	30.2	381.3		33	36	27	27	24		15	18	36	40	48	27	33	45	26	33	27					39	33	51
C-R	Recreational Use of Habitats (non-vehicular)	1	29.8	361.8	18	33	36	27	27	24		20				30	36			45	39			22					51
C-R	Excessive Groundwater Withdrawal	1	6.0	70.5	12	33	36	27	27	24		10	18				36	27	33	45		33	27		33		39	33	51
C-R	Secondary Home/Resort Development	1	5.9	81.0	24	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33						39	33	51
C-R	Primary Residential Development	1	3.0	44.3	24	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33	27	33				39	33	51
C-R	Forest Type Conversion	1	2.8	40.0	24	33	36	27	27	24	24	15		27	30	36		33	45	26	33	27			36			51	
RV	Residential Sewage/Septic Systems	11	220.5	2,411.9		33	36	27	27	24		15	18	18	20	48	27	33	45		33	27	33				39	33	51
RV	Incompatible Grazing/Pasture Management Practices	8	151.4	2,175.7	24	33	36	27	27	24		15		27	30	20	36		33	45	26	33	27	44					51
RV	Municipal Wastewater Treatment/Stormwater Runoff	5	91.2	1,149.7		33	36	27	27	24		15	18	36	40	48	27	33	45	26	33	27					39	33	51
RV	Incompatible Forestry Practices	4	67.2	1,008.5	24	33	36	27	27	24	32	15		27	30	20	36		33	45	26	33	27			36		51	
RV	Primary Residential Development	3	59.2	887.8	24	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33	27	33				39	33	51
RV	Recreational Use of Habitats (non-vehicular)	2	39.5	479.5	18	33	36	27	27	24		20				30	36			45	39	27		22					51
RV	Incompatible Mining Practices	1	32.0	439.0	12	33	36	27	27	24		15		27	30	20	36		33	45	26	33	27	40	22	40		39	51
RV	Commercial/Industrial Development	2	30.4	453.5	18	33	36	27	27	24	16	15	18	27	30	48	27	33	45	26	33	27	22				39	33	51
RV	Construction of Roads/Railroads/Utilities	2	30.4	478.4		33	36	27	27	24		15	18	36	40	20	48	27	33	45	26		27				39	33	51
RV	Excessive Competition/Predation by Native Species	1	19.3	176.9		33	36	27	27	24							24			45									51
SBR	Recreational Use of Habitats (non-vehicular)	2	66.5	808.6	18	33	36	27	27	24		20				30	36			45	39			22					51
SBR	Residential Sewage/Septic Systems	2	58.1	635.9		33	36	27	27	24		15	18	18	20	48	27	33	45		33	27	33				39	33	51
SBR	Incompatible Forestry Practices	2	52.0	780.5	24	33	36	27	27	24	32	15		27	30	20	36		33	45	26	33	27			36		51	
SBR	Incompatible Grazing/Pasture Management Practices	1	18.8	269.4	24	33	36	27	27	24		15		27	30	20	36		33	45	26	33	27	44					51