

APPENDIX L. WILDLIFE TRACS ACTIONS AND OUTPUTS

Project Level	Action Level 1	Action Level 2	Action Level 3	Level 2 and Level 3 Output Measures	Description/Examples/Notes
Project Categories	Category	Strategy	Activity	Units	
Administration and/or Conservation / Management and/or Recreation	Coordination and Administration	Coordination and Administration		Number	Coordination and administration necessary for effective agency operations and program/project management
			Program/project administrative support	Number	Administration necessary for effective program/project management (e.g., staff support and training, monitoring progress of grant proposal and reporting processes)
		Incentives	Incentives	Number	Development and delivery of economic incentives to private landowners to influence responsible stewardship of land/water and specific species
	Direct Management of Natural Resources	Create new habitat or natural processes		Acres	Creation of new habitat or natural processes for the benefit of fish and wildlife and recreational users
			Habitat conversion	Acres	Conversion of one type of habitat into another (e.g., creating bottomland forest from agricultural land, wetland creation) Note: Forest and wetland would be the appropriate broad habitat types to code for these two examples
			impoundment creation	Acres	Creation of shallow water impoundments for the primary benefit of waterfowl
		Dam and barrier removal		Structures	Removal of barriers to maintain aquatic species populations and restore ecological functions in streams (e.g., dam or dike removal, notching of dams)
			Culvert work	Structures	Replacement or repair of road culverts (e.g., installing larger culvert, eliminating perching)

	Dam notching	Structures	Removal of portions of dams for increased flow
	Dam removal	Structures	Removal of entire dams
	Road crossing removal	Structures	Removal of other obstructions (e.g., beaver dams)
Fire Management	Fuel reduction	Acres	Use of fire to benefit fish and wildlife and their habitats
	Prescribed burning	Acres	Application of treatments to reduce the risk of high-severity wildfires and to manage changes in the ecological functions of forests (e.g., mechanical thinning)
		Acres	Application of fire in a knowledgeable manner to forest fuels on a specific land under selected weather conditions to accomplish predetermined, well-defined management objectives (e.g., burning an established native grass community to reduce or eliminate invading brush or exotic species)
Fish and wildlife habitat structures		Structures	Installation of structures to benefit fish and wildlife and their habitats
	Artificial reef development	Structures	Development of artificial reefs in freshwater or marine environments for aquatic species spawning, foraging and refugia
	Hibernacula	Structures	Creation or improvement of overwintering sites
	Nesting habitat improvements	Structures	Installation of nesting structures (e.g., wood duck boxes, osprey platforms)
	Wildlife escape structures	Structures	Installation of structures that allow wildlife to escape from man-made devices placed in the environment (e.g., ramps that allow sage grouse to escape from livestock watering troughs)
Grazing/farm management		Acres	Improvements to agricultural practices to benefit fish and wildlife and their habitats
	Alley cropping/silvopasture	Acres	Methods of planting in which perennial, preferably leguminous trees or shrubs, are grown simultaneously with an arable crop
	Farming residue management	Acres	Use of vegetative crop material left on a field after harvesting, pruning or processing to benefit wildlife and soil quality
	Forage use management	Acres	Management of timing and duration of grazing to maintain adequate cover for range health and nesting success (e.g., establishment of rotational grazing system to improve grassland nesting bird habitat)
	Livestock heavy use area establishment	Acres	Provision of stable, non-eroding surfaces for areas intensively used by livestock to protect and improve water quality

	Livestock stream crossing	Acres	Installation of structures that allow livestock to cross a stream in a safe and environmentally sound manner (e.g., fords, culverts, bridges)	
	Nutrient or runoff management system	Acres	Application of techniques to minimize nutrient runoff from agricultural operations	
	Riparian fence installation	Acres	Installation of fences along riparian areas to keep out livestock	
	Waste storage/treatment	Acres	Management of on-farm generated wastes in an environmentally responsible manner (e.g., liquid retention and storage ponds, anaerobic waste treatment lagoons)	
		Acres	Removal of hazards or infrastructure to benefit fish and wildlife and their habitats	
Hazard or infrastructure removal	Degraded land reconstruction	Acres	Reconstruction of degraded land to benefit wildlife (e.g., abandoned mine area recovery, deleveling)	
	Derelict gear (net/pot) removal	Acres	Removal of derelict fishing gear from waters to prevent continued capture of aquatic species (e.g., fishing nets, fish/crab pots)	
	Shoreline armoring removal	Acres	Removal of shoreline armoring to improve aquatic habitats (e.g., jetties, riprap)	
	Solid waste removal	Acres	Removal of solid waste to improve habitat for wildlife (e.g., derelict vehicles, rubbish)	
			Miles	Stream improvements to benefit fish and wildlife and their habitats
In stream modification	Channel reconfiguration	Miles	Restoration of natural stream channels (e.g., returning meanders and sustainable profiles to straightened streams, sandbar improvement)	
	Channel structure placement	Miles	Placement of structures within streams to restore natural characteristics (e.g., cross vanes, boulders)	
	Nutrient improvement	Miles	Application of nutrients to improve water quality of fish and wildlife (e.g., liming of streams, carcass placement)	
	Spawning by-pass channels	Miles	Construction of side channel fish spawning and rearing habitat	
	Spawning gravel placement	Miles	Addition of gravel to streams to improve spawning areas	
	Stream bank stabilization	Miles	Stabilization of stream banks (e.g., bank armoring, bank bioengineering)	

	Acres	Control of invasive
Animal - chemical	Acres	Control of invasive animal species by chemical means (e.g., piscicide treatment of sea lamprey in inland waters)
Animal - mechanical	Acres	Control of invasive animal species by mechanical means (e.g., constructing a barrier in a stream to prevent entry of invasive fish species)
Plant - biological	Acres	Control of invasive plant species by biological means (e.g., using beetles to control purple loosestrife)
Plant - chemical	Acres	Control of invasive plant species by chemical means (e.g., herbicide treatment of invasive plant species)
Plant - mechanical	Acres	Control of invasive plant species by mechanical means (e.g., hand pulling of invasive plant species)
Invasive species control	Acres	Physical manipulation in shoreline areas to maintain fish and wildlife habitats and/or restore ecological functions
Living shorelines	Acres	Placement of sand onto beaches and employing other techniques for their renourishment
Beach renourishment	Acres	Installation of hard structures (e.g., seawall bulkhead) or living structures (e.g., greenwall systems) to control erosion
Erosion control structures	Acres	Application of techniques to restore sand dunes (e.g., fencing off sea-grass areas)
Sand Dune restoration	Acres	Planting or seeding to maintain fish and wildlife habitats and/or restore ecological functions
Field border/hedgerow	Acres	Maintenance or establishment of edge between two vegetation types
Herbaceous vegetation	Acres	Planting/seeding of grasslands
Plant propagation/nursery	Acres	Use of nurseries to raise plants for habitat improvement
Submerged aquatic vegetation	Acres	Restoration of vegetation that lives at or below the water surface
Trees/shrubs	Acres	Planting trees or shrubs
Vegetation buffer	Acres	Maintenance or establishment of strips of land with permanent vegetation to intercept stormwater runoff and minimize soil erosion
Woody debris	Acres	Placement of limbs, bush, trees and stumps to improve habitat

		Acres	Physical manipulation of vegetation to maintain fish and wildlife habitats and/or restore ecological functions	
	Chaining	Acres	Dragging heavy chains to remove unwanted vegetation	
	Clearing and snagging	Acres	Use of varied techniques to clear vegetation (e.g., brush shearing to set back early successional plant communities)	
Vegetation management	Dixie harrow/Lawson aerator	Acres	Removal of vegetation and treating soil by pulling devices behind a tractor (e.g., removing sagebrush for improved herbaceous cover for sage grouse)	
	Forest stand improvement	Acres	Removal of trees to improve forest habitat for wildlife (e.g., forest management that promotes a particular serial stage)	
	Mowing	Acres	Cutting down grass or grain to maintain habitat for wildlife	
	Plowing/Discing	Acres	Plowing or other mechanical means of disturbing existing vegetation and exposing soil	
		Number	Management of water to benefit fish and wildlife and their habitats	
Water management	Ditch plugs	Number	Installation of earthen plugs into drainage ditches to restore wetlands	
	Diversion/headgate	Number	Installation or maintenance of structures to divert water	
	Drainage	Number	Removal of tile drains or drainage ditches to restore wetland hydrology	
	Spring development	Number	Application of techniques to improve the flow, quantity and yield of water from a natural spring	
	Tide gate	Number	Installation or maintenance of structures to increase the hydroperiod and water depth of a wetland	
	Impoundment maintenance	Number	Maintenance of impoundments for waterfowl habitat (e.g., renovation of impoundment dikes)	
	Water control structure	Number	Installation or maintenance of structures to simulate natural hydrological processes	

	Wildlife damage management	Interventions	Assessment and management of damage from nuisance native fish and wildlife. Includes control of predators by biological, chemical or mechanical means to maintain populations of species at risk and restore ecological functions (e.g., gull or cormorant control, nest exclusion devices, cave gating) Note: Limited eligibility for funding through WSFR grant programs
		Interventions	Assessment and management of wildlife disease situations. Includes control or treatment of diseased animals to maintain populations of species at risk and restore ecological functions (e.g., chronic wasting disease, brucellosis, tuberculosis, plague management activities)
	Wildlife disease management	Databases	Information technology development and maintenance to support project objectives (e.g., statewide database development) Note: This is different from other Data Collection and Analysis activities in that it refers to the hardware, software, and supporting infrastructure that support multiple data collection efforts
		Database development	Information technology development to support project objectives (e.g., statewide database development) Note: This is different from other Data Collection and Analysis activities in that it refers to the hardware, software, and supporting infrastructure that support multiple data collection efforts
		Information systems operations and maintenance	Information technology maintenance to support project objectives (e.g., GIS analyses) Note: This is different from other Data Collection and Analysis activities in that it refers to the hardware, software, and supporting infrastructure that support multiple data collection efforts
Data Collection and Analysis	Database development and management	Databases	

	<p>Collection and analysis of data as part of research, survey or monitoring primarily focused on fish and wildlife populations Note: includes compilation, management, synthesis, analysis and reporting of spatial and non-spatial data Note: Code work on fish and wildlife diseases to Wildlife Disease Management within Direct Management of Natural Resources</p>	Projects	
Abundance determination	Determination of relative abundance or estimation of size of fish and wildlife populations (e.g., adult population estimate, juvenile relative abundance)	Projects	
Age, size and sex structure	Determination of age, size or sex structure of fish and wildlife populations (e.g., age and growth, length frequency, sex ratio)	Projects	
Baseline inventory	Baseline survey and inventory to understand distribution of fish and wildlife population	Projects	Research, survey or monitoring - fish and wildlife populations
Food habits	Studies on food habits of fish and wildlife species or their utilization as prey	Projects	
Genetics	Genetics studies of fish and wildlife populations (e.g., population connectivity, hybridization)	Projects	
Movement	Studies of fish and wildlife movements (e.g., tagging, telemetry)	Projects	
Population assessment	Assessments of biological information to determine status of fish and wildlife populations (e.g., population viability analysis, fisheries stock assessment)	Projects	
Reproduction	Studies of reproduction of fish and wildlife populations (e.g., fecundity, nesting success)	Projects	
	Collection and analysis of data as part of research, survey or monitoring primarily focused on fish and wildlife habitats Note: includes compilation, management, synthesis, analysis and reporting of spatial and non-spatial data	Projects	Research, survey or monitoring - habitat

Baseline inventory	Projects	Baseline survey and inventory to understand distribution of fish and wildlife habitat quality and quantity (e.g., wetland mapping)
	Projects	On-going monitoring of fish and wildlife habitat quality and quantity (e.g., annual early successional habitat survey, artificial reef condition)
	Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on utilization of fish or wildlife resources and demographics of users Note: includes compilation, management, synthesis, analysis and reporting of data
	Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on utilization of fish or wildlife resources (e.g., lake creel surveys; deer statistics)
	Projects	Collection and analysis of data as part of research, survey or monitoring primarily focused on human dimensions (e.g., demographic surveys; resource economics analyses)
	Studies	Research and development of techniques important for the conservation and management of fish and wildlife
	Studies	Research on artificial propagation of fish and wildlife (e.g., nutrition studies, culture methods)
	Studies	Development or improvement of methods to restore habitats and natural processes (e.g., evaluations of water level fluctuations)
	Studies	Development or improvement of research techniques or management tools (e.g., tag retention studies, sampling device improvements, testing of animal control devices)
	Students	Training of educators/instructors on aquatic resources, firearm safety, and archery-related activities
Monitoring		
Harvest		
Human dimensions		
Artificial propagation studies		
Habitat restoration methods		
Fish and wildlife research, survey and management techniques		
Techniques development		
Student Training		
Education		

Facilities and Areas (Major Renovation)	Wildlife education	Students	Instruction of students on wildlife species and their habitats in an educational setting Note: This activity has a limited eligibility for reimbursement through WSFR grant programs
	Boat pump out and dump stations	Number	Pump out stations
		Number	Dump stations
		Number	Floating restrooms
	Fish passage facilities	Number	Pump out boats
		Number	Major renovation of facilities designed to allow fish to move past in stream barriers (e.g., fish ladders; counting stations) Note: Not related to removal of dams and other barriers coded elsewhere
		Number	Counting traps/stations
	Fish passage facilities	Number	Facilities designed specifically for downstream movement of fish
		Number	Fish ladders
		Number	Fish lifts
		Number	Fishways whose designs are based on simulating natural stream characteristics and are constructed of natural materials
		Sites	Major renovation of screening systems that prevent fish from passing into areas that do not support their survival (e.g., into irrigation diversion channels) Note: Primarily funded by FRIMA grant program in Region 1
	Fish screening and related facilities	Sites	Major renovation of facilities to propagate fish or wildlife species for restoration purposes
	Hatcheries (restoration)	Number	Dikes/levees
	Wildlife Management Areas	Number	Wildlife blinds, towers, platforms, etc.

Facilities and Areas (New Construction)	Boat pump out and dump stations	Construction of new facilities for pumping sewage from boats Note: Typically funded through the Clean Vessel Act program	Number	
		Dump stations (*)	Number	
		Floating restrooms (*)	Number	
		Pump out boats (*)	Number	
		Pump out stations (*)	Number	
	Fish passage facilities	Construction of new facilities designed to allow fish to move past in stream barriers (e.g., fish ladders; counting stations) Note: Not related to removal of dams and other barriers coded elsewhere	Number	
		Counting traps/stations	Number	
		Downstream bypass facilities	Number	
		Fish ladders	Number	
		Fish lifts	Number	
Fish screening and related facilities	Nature-like fishways	Number		
	Fishways whose designs are based on simulating natural	Number		
	Construction of new screening systems that prevent fish from passing into areas that do not support their survival (e.g., into irrigation diversion channels) Note: Primarily funded by FRIMA grant program into Region 1	Sites		
		Sites		
Wildlife Management Areas	Construction of new facilities to propagate fish or wildlife species for restoration purposes	Sites		
	Major renovation of facilities at Wildlife Management Areas	Number		
	Dikes/levees	Number		
Boat pump out and dump stations	Wildlife blinds, towers, platforms, etc.	Number		
	Routine operations and maintenance of facilities for pumping sewage from boats Note: Typically funded through the Clean Vessel Act Program	Number		
Facilities and Areas (Operations and Maintenance)				

Dump stations Floating restrooms Gallons of sewage pumped Pump out boats Pump out stations	Number	Dump stations Floating restrooms Gallons of sewage pumped. Note: Likely to be a required data element in the future when CVA regulations are revised Pump out boats Pump out stations
	Number	
	Number	
	Number	
	Number	
	Number	
	Number	Routine operations and maintenance of facilities designed to allow fish to move past in stream barriers (e.g., fish ladders; counting stations) Note: Not related to removal of dams and other barriers coded elsewhere
	Number	
	Number	Counting traps/stations
	Number	Facilities designed specifically for downstream movement of fish
	Number	
	Number	Fish ladders
	Number	Fish lifts
	Number	Fishways whose designs are based on simulating natural stream characteristics and are constructed of natural materials
	Sites	Routine operations and maintenance of screening systems that prevent fish from passing into areas that do not support their survival (e.g., into irrigation diversion channels) Note: Primarily funded by FRIMA grant program in Region 1
	Sites	Routine operations and maintenance of facilities to propagate fish or wildlife species for restoration purposes
	Number	Routine operations and maintenance of Wildlife Management Areas Note: Activities primarily for restoration and management of species and habitats should be coded to Create, Restore or Enhance Habitat and Natural Processes
	Number	Dikes/levees

<p>Land and Water Rights Acquisition and Protection (Potential High Level Purposes: Conservation/Management, Recreation, Administration)</p>	<p>Observation Structures</p>	<p>Wildlife blinds, towers, platforms, etc.</p>	<p>Number</p>	<p>Number</p>	
		<p>Trails</p>	<p>Acquisition of lands through fee title acquisition</p>	<p>Acres</p>	
	<p>Land acquisition</p>	<p>Fee title</p>	<p>Acquisition of lands through leases, permanent easement, cooperative agreements, contracts or other non-fee title arrangements</p>	<p>Acres</p>	<p>Acres</p>
		<p>Non-fee title</p>	<p>Purchase of water rights through fee title acquisition (e.g., purchase of water rights to maintain adequate flows for endangered stream fishes)</p>	<p>Acres feet</p>	<p>Acres feet</p>
	<p>Water rights acquisition</p>	<p>Fee title</p>	<p>Acquisition of water rights through leases, permanent easements, cooperative agreements, contracts or other non-fee title arrangements (e.g., purchase of water rights to maintain adequate flows for endangered stream fishes)</p>	<p>Acres feet</p>	<p>Acres feet</p>
		<p>Non-fee title</p>	<p>Designation of a site or landscape as having unique and important value to fish and wildlife with or without legal protections (e.g., waterfowl breeding area, Marine Protected Area)</p>	<p>Acres</p>	<p>Acres</p>
	<p>Conservation area designation</p>	<p>Conservation area designation</p>	<p>Number of acres that are protected by agreement with private landowners, but which do not involve active habitat improvement Note: Used extensively within the Landowner Incentive Program</p>	<p>Acres</p>	<p>Acres</p>
		<p>Private lands agreements</p>	<p>Engagement of partners to achieve shared objectives and broader coordination across overlapping areas</p>	<p>Number</p>	<p>Number</p>
	<p>Partner/stakeholder engagement</p>	<p>Partner/stakeholder engagement</p>	<p>Engagement of federal, state and local agencies and tribal entities to achieve shared objectives and broader coordination across overlapping areas (e.g., outreach with tribal governments for habitat restoration)</p>	<p>Number</p>	<p>Number</p>
		<p>Government agency</p>	<p>Government agency</p>	<p>Government agency</p>	<p>Government agency</p>
<p>Outreach</p>	<p>Outreach</p>	<p>Outreach</p>	<p>Outreach</p>	<p>Outreach</p>	

		Non-governmental organization	Number	Engagement of the NGO community to achieve shared objectives and broader coordination across overlapping areas (e.g., coordinate with an NGO on a fish and wildlife GIS analysis)
	Others		Number	Engagement of other partners to achieve shared objectives and broader coordination across overlapping areas (e.g., convene an advisory committee from academia to assist with management planning for a species)
	Recruitment and retention activities		Number	Participation in programs intended to recruit and retain anglers, boater, hunters or wildlife watchers
			Number	Participation in programs intended to recruit and retain wildlife watchers Note: this activity has limited eligibility for funding through WSFR grant programs
Planning	Land use planning	For wildlife watching	Plans	Leading or participating in land use planning for rural, urban or agricultural lands (e.g., assist in developing county-wide zoning plans, participate in workgroup regarding low impact development siting)
			Plans	Development of agency strategic and operational plans and fish and wildlife comprehensive management systems Note: Does not include actions to implement plans
	Organizational strategic and CMS planning	Organizational strategic and CMS planning	Plans	Development of agency strategic and operational plans Note: Does not include actions to implement plans
	Species and habitat management planning		Plans	Development of management plans for fish and wildlife species and habitats
		Species management planning	Plans	Development of management plans for fish and wildlife species (e.g., interjurisdictional fisheries management planning)
		Listed species recovery planning	Plans	Development of recovery plans for federal or state listed species

	Species Re-introduction and Stocking	State Wildlife Action planning	Habitat management planning	Plans	Development of management plans for habitats and natural processes (e.g., management planning for longleaf pine habitat; Habitat Conservation Plan development)
			Habitat Conservation Plan (HCP) Development	Plans	
	Native Species restoration		SWAPs	SWAPs	Conduct activities to develop and revise State Wildlife Action Plans (e.g., convene interagency work groups to revise portions of a SWAP; hold public hearings to help set priorities for SWAP conservation actions)
			Animals	Animals	Re-introduction, rehabilitation and relocation of native animals or plants in their historic habitats
			Animals	Animals	Re-introduction of propagated native animals or plants to their historic habitats (e.g., restore American shad to rivers within their historic range, head-starting rare turtles)
			Animals	Animals	Rehabilitation of injured fish and wildlife
	Technical Assistance		Rehabilitation	Animals	Relocation of native species (including plants) to suitable habitats (e.g., translocate/breed in captivity black-footed ferrets to establish new populations in suitable habitat)
			Translocation	Animals	Review of agency and private sector policies, projects and plans (primarily related to development and adverse impacts to natural resources) to help ensure potential impacts to fish and wildlife are avoided, minimized and/or compensated/mitigated (e.g., review of municipal pier development, review of transmission corridor siting)
		Environmental Review		Reviews	
			Review of proposed projects	Reviews	Review of proposed development projects to help ensure that impacts to fish and wildlife are minimized and resource benefits are maximized

<p>Technical assistance</p>	<p>Review of proposed policies and plans</p>	<p>Reviews</p>	<p>Review of non-conservation oriented policies and plans to help ensure that impacts to fish and wildlife are minimized and resource benefits are maximized (e.g., review of harbor dredging plan, review of state highway plans)</p>
	<p>Assists</p>	<p>Assists</p>	<p>Provision of professional training and technical assistance to others on fish and wildlife assessment and management</p>
	<p>With individuals and groups involved in resource management decision making</p>	<p>Assists</p>	<p>Provision of professional training and technical assistance on fish and wildlife assessment and management to individuals and groups involved in resource management decision-making (e.g., provide agency-collected data to other governmental officials, train non-governmental organizations on new trapping methods, review of conservation-oriented policies and plans)</p>
	<p>With private landowners</p>	<p>Assists</p>	<p>Provision of technical assistance on fish and wildlife management practices to private landowners Note: Could include development and delivery of economic incentives to private landowners to influence responsible stewardship of land/water and specific species</p>

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