

RIPARIAN-WILDLIFE TASKS

RIPARIAN-WILDLIFE TOTAL COST ESTIMATE: \$383,000

TASK #	FOUNDATION HYPOTHESIS	SUBHYPOTHESIS	INFORMATION/MODELING NEEDS	SUBTASKS	PRIORITY	ESTIMATED COST	RATIONALE	ASSUMPTIONS
RW1-1	A wider riparian corridor supports a greater diversity and/or larger populations of vertebrate wildlife and hardwood plant species		A) Establish and monitor vertebrate line transects at proposed bank rehabilitation sites, bird point counts and plant sampling bands transects to the valley wall in selected sampling units.	At four control sites and 14 proposed bank rehab sites, establish line transects for vertebrates at least to the edge of the proposed project extents, and perhaps further. Map amphibian habitat and monitor use, conduct bird counts to document use and timing of use.	Medium/Low	\$69,000	Provides pre-construction baseline data to demonstrate benefits/impacts of bank rehabilitation projects	This needs to be coordinated with the fish monitoring task (FH1-1) and Geomorphic monitoring task (G2-2) as designed in experimental design task (NH-10). Costs taken from TYAP and does not include riparian monitoring (this is in Task RW3-4)
RW2-1	Intra- and inter-annual flow variability provides greater habitat variability on bank rehabilitation and natural alternate bar sites than at unrehabilitated (bermed) reaches.		A) Define sampling units, appropriate for wildlife and plant habitats, in alternate bar and unrehabilitated (bermed) reaches (i.e. backwater, side channel, exposed point bar, pool tail, riffle, terrace, undercut bank, plant series, etc.).	Conduct as part of workshop in Non-hypothesis based data Task NH-10	High/Low	\$0	Addresses testable hypothesis, potential planning constraints, and project success	Costs assumed in Non-Hypothesis data
RW3-1	The timing, duration, magnitude, frequency and ramping rates of flow releases recommended will establish a diverse complement of riparian hardwood species at bank rehabilitation site floodplains		A) Qualitatively define target riparian hardwood stand structure (species composition - series, locations, acreages?)	Based on literature and M&T 1998 work, develop riparian rehabilitation objectives (How do we want the riparian corridor to function), and develop riparian revegetation and channel (floodplain) geometry guidelines for future bank rehab projects.	High/Medium	\$20,000	Provides riparian restoration goals for new channel morphology, also develops revegetation strategy so that no net loss of riparian habitat occurs as a result of bank rehabilitation projects	Costs assumed, no new fieldwork should be needed, just compilation of existing data and preparing conceptual drawings, planting schematics, plant lists, etc.
RW3-2	Flow timing, magnitude, and duration can be used to encourage initiation of target species on floodplain surfaces, and discourage undesirable species initiating on exposed gravel bar surfaces	B) Monitor seed dispersal and peak density timing for the eight key riparian hardwood species (but focusing on narrowleaf willow and black cottonwood) and quantify annual variability.		Do this task at a small subset of the 14 proposed bank rehab sites to be constructed in first two years, in conjunction with veg monitoring	High/High	\$10,000	Evaluates the seed dispersal timing for a critically dry year for a range of hardwood species and refines our knowledge in areas with high uncertainty	Costs assumed, assumes that this is performed during bank rehab site monitoring tasks (RW1-1)
RW3-3	Releasing flows that inundate floodplains at a coincidental time of year with target riparian species seed dispersal will result in successful germination on floodplain surfaces	C) Develop/Apply Degree-Day model and assess its predictive ability to define specific streamflow requirement for less frequently occurring hardwood species (refine WY type flow schedule and compare with actual).		Develop model to predict seed dispersal given pertinent environmental variables, including temperature, runoff from prior years, riparian species, etc. in conjunction with Task RW3-2	Medium/Medium	\$50,000	Addresses testable hypothesis that relates to flow volume; linked to beneficial use	Cost is a guess, doesn't seem as important as others
RW3-4	Flow timing, magnitude, and duration can be used to encourage initiation of target species on floodplain surfaces, and discourage undesirable species initiating on exposed gravel bar surfaces	D) Inventory seedlings and their bank locations at specified locations to assess correlation of WY 2002 flow schedule, seed dispersal and rooting locations.		Monitor riparian encroachment process at subset of 1991-1993 bank rehab sites, as well as new bars formed during the 1997 flood in the Junction City area	High/High	\$35,000	Addresses testable encroachment related hypothesis anticipated with FY 2002 management action	Cost taken as 35% of the \$100,000 listed in the TYAP for physical monitoring, assumes single transect to describe conditions
RW3-5	Flow timing, magnitude, and duration can be used to encourage initiation of target species on floodplain surfaces, and discourage undesirable species initiating on exposed gravel bar surfaces	E) Quantify groundwater rate of change with the receding limb into summer/fall baseflow and lowest groundwater elevation to evaluate drought mortality as it relates to seedling success at different bank positions above the low water edge.		Install piezometers and soil moisture probes at bank rehab sites, should be combined with Task RW3-4	High/Medium	\$10,000	Addresses testable encroachment related hypothesis anticipated with FY 2002 management action	Cost is minor if done with RW3-4, rough estimate
RW3-6	Flow timing, magnitude, and duration can be used to encourage initiation of target species on floodplain surfaces, and discourage undesirable species initiating on exposed gravel bar surfaces	F) Calibrate and test the box recruitment model to different planform arrangements to predict recruitment for eight hardwood species at Bank Rehabilitation sites, natural bars and proposed sites		Based on channel geometry provided by Task G2-5, hydrology provided by Task G2-4, develop and calibrate box recruitment model to predict conditions for riparian recruitment on proposed floodplains.	High/High	\$30,000	Addresses testable hypothesis that relates to flow volume and restricting encroachment, linked to beneficial use	Cost is a guess, Isn't as important for FY 2002 because recruitment would occur during wetter years, but will need eventually so we can apply during wetter water years
RW4-1	The timing, duration, magnitude, frequency and ramping rates of recommended flow releases will discourage encroachment of riparian hardwood species at bank rehabilitation site exposed gravel bars	High flows releases of 6000 to 11,000 cfs will scour seedlings up to 3 years old.	G) Quantify rooting depths of the last three seedling cohorts along a cross section evaluating the susceptibility of initiating and established plants to bedscour following multiple low flow years.	Go to existing bank rehab sites with newly encroaching riparian vegetation, dig up seedlings and describe root depth and morphology as a function of that plant's age	Medium/Medium	\$20,000	Refines our knowledge in rooting depth, an area of high uncertainty, as it relates to bank position and substrate composition	Cost is a guess, Isn't as important for FY 2002 because scour would occur during wetter years, but will need eventually so we can apply during wetter water years
RW4-2	High flows releases of 6000 to 11,000 cfs will scour seedlings up to 3 years old.	H) Quantify bed scour depths along cross sections through exposed gravel bars to further evaluate bed scour as a function of peak flow magnitude.		Coordinate with Task G2-5, install bed scour cores and/or chains in locations where encroachment occurs and monitor	Low	\$20,000	Improves understanding of bar scour relationships, however, critically dry year and no bank rehab site construction in FY 2002 will likely result in no bed scour to measure.	Costs should be assumed by Task G2-5
RW5-1	The proposed flow regimes (timing, duration, magnitude, frequency and flow rates) for the five water-year classes will not detrimentally impact (and should benefit) the wildlife populations of a selected subset of riparian obligates (Target Species) on the mainstem Trinity River.		A. Monitor the Target Species in sampling units of bank rehabilitation sites, natural alternate bar and riparian berm locations.	Map amphibian and avian habitat on same alternate bars and bank rehabilitation sites as being done for geomorphic and riparian monitoring, document target species use of these habitats, develop rehabilitation guidelines to reduce detrimental impacts and increase benefits	High/High	\$0	Identifies potential bank rehabilitation site planning and implementation constraints	Seems somewhat redundant with RW1-1, costs are zeroed because following tasks are subtasks of this one

RW5-2	Peak flow release magnitude, duration, timing, and ramping rate will not dessicate Yellow-legged frog egg masses. Increased area of complex alluvial features will increase egg nursery and tadpole habitat, increasing survival and populations of yellow-legged frogs. Water temperatures resulting from flow releases will decrease egg incubation time and increase tadpole growth rates, increasing survival and populations of yellow-legged frogs.	1) Yellow-legged Frogs: Conduct egg mass and larvae surveys in sampling units before and after scheduled peak flow releases. Collect habitat measurements to refine models and quantify habitat parameters associated with presence and abundance of Yellow-legged Frogs. Collect climatic measurements to develop a model of environmental conditions at the time of initiation of egg laying and test the model for predictive ability.	See left	High/Medium	\$50,000	Addresses testable hypotheses that could be tested with FY2002 anticipated management action	Costs from TYAP
RW5-3	The abundance of juvenile and adult turtles will remain stable or increase following implementation of the flow regime. The juvenile to adult ratio will increase as a result of higher juvenile survival rates.	2) Western Pond Turtles: Conduct turtle surveys in sampling units to compare post-implementation and baseline (1990-1994) density estimates. Collect measurements of habitat parameters associated with higher densities of turtles, i.e., size and depth of pools, flow velocity, water temperature, presence of underwater cover and emergent basking sites, to update models of turtle habitat associations and population changes.	See left	Medium/Low	\$0	Linked to beneficial use, and will show project success	Should be done with Task RW5-2, Cost lumped in with RW5-2
RW5-4	The timing of peak flow releases is prior to target bird species nesting period, such that nesting birds will not be impacted.	3) Riparian corridor nesting birds: Conduct nest searches for Target Bird Species and monitor the nest locations during varied peak flow releases.	See left	Medium/Low	\$19,000	provides baseline information and improves our levels of uncertainty with these species	Costs from TYAP
RW6-1	Riparian habitat changes initiated by the proposed bank rehabilitation and flow regimes will not affect (and should benefit) the abundance and reproductive success of the riparian wildlife species on the mainstem Trinity River.	A. Quantify and map habitat characteristics associated with presence, abundance, and reproductive success of Target Species. Collect proximal data relevant to sampling units and species (i.e. substrate, temperature, plant stand structure and composition, etc.) for comparison of bank rehabilitation, riparian berm, and natural alternate bar sites at a range of flows and seasons.	Map habitat, stuff below is documenting presence and absence	High/High	\$50,000	Addresses testable hypotheses that could be tested with FY2002 anticipated management action	Nothing in TYAP, so costs estimated
RW6-2	The riparian habitats along the mainstem will remain an important staging and migration habitat for the Willow Flycatcher after implementation of the flow regime (could they be improved?).	1) Willow Flycatcher: Collect presence and abundance information on the Willow Flycatcher using survey or capture techniques during spring, summer and fall. Map locations and monitor over time for changes in abundance.	see left	High/Low	\$0	Identifies potential bank rehabilitation site planning and implementation constraints, may not be as important for Critically Dry year in FY 2002	This should be same project as RW5-4, so no costs added here, should just be pre-construction conditions due to no construction in FY 2002
RW6-3	The abundance of riparian bird species of special concern present on the Trinity River will be affected (benefitted?) by riparian habitat changes on the mainstem after the flow regime is implemented.	2) Riparian Bird Species: Conduct point count censuses within the sampling units and in adjacent upland habitats to detect changes in abundance and distribution of the bird species following implementation. Compare presence and abundance for species of concern (Willow Flycatchers, Yellow Warblers, Yellow-breasted Chats, Green-backed Herons, Tree Swallows, Bald Eagle, Osprey, and other aquatic and gravel-bar associated birds) with baseline (1990-1992) surveys. Collect habitat measurements, i.e. plant species composition, structure, area of habitat types, etc. to track possible changes and model associations of habitat characteristics and bird abundance.	see left	High/Low	\$0	Identifies potential bank rehabilitation site planning and implementation constraints, may not be as important for Critically Dry year in FY 2002	This should be same project as RW5-4, so no costs added here, should just be pre-construction conditions due to no construction in FY 2002