Project 184
Foothill Yellow-legged Frog
Monitoring Plan

El Dorado Irrigation District

May 2007

This study plan is result of a collaborative effort between El Dorado Irrigation District (EID), Project 184 Ecological Resources Committee (ERC), USDA Forest Service (FS), and California Department of Fish and Game. This Plan was developed to satisfy the foothill yellow-legged frog (FYLF) monitoring requirements set forth in the Project 184 Settlement Agreement (EID 2003), FS 4(e) License Condition No. 37 (USFS 2003), and the California State Water Resources Control Board Section 401 Clean Water Act Water Quality Certification Condition No. 15 (SWRCB 2006). The scope of this plan has been defined by the FYLF monitoring requirements set forth in these documents and has been agreed to by El Dorado Irrigation District (EID). This study plan incorporates the language from the requirements specified above, the Federal Energy Regulatory Commission (FERC) license, previous survey efforts (ECORP 2002, ECORP 2005, GANDA 2007) and comments from the ERC, FS, CDFG and SWRCB.

1.0 Background

The El Dorado Irrigation District (EID) entered into a Relicensing Settlement Agreement for the El Dorado Project (FERC No. 184) in April 2003 and received a FERC license for Project 184 on October 18, 2006. Prior to receipt of the license, EID contractors performed surveys for FYLF in 2002, 2004 and in 2005. The surveys conducted in 2002 were used to determine monitoring sites included in the Settlement Agreement. Surveys performed in 2004 and 2005 were conducted to satisfy a portion of the monitoring requirements. However, as discussed with the ERC, FS, and SWRCB following the 2005 surveys, these surveys cannot officially be considered as Year 1 and 2 surveys because the flow requirements of the new license had not yet been implemented. Instead, they were used to satisfy the objectives of determining the success of the various life stages of existing known populations. According to the rationale in the Settlement Agreement, monitoring during years 1-3 provides baseline conditions prior to, and during the initial stages of stream flow modification, and effects to the egg and larval stages. The third year of monitoring is scheduled for 2007. Monitoring at the end of each 5-year period provides an index of changes in amphibian populations, following sufficient response time to stream flow modifications. The first 5-year index monitoring is scheduled for 2011.

2.0 Study Plan Objectives

1. Identify breeding and larval periods for FYLF in project affected reaches
2. Determine the timing and success of FYLF egg, larvae, and metamorph life stages
3. Determine size and condition of FYLF metamorphs in late September to estimate probability of over-wintering success
4. Determine if any threshold is reached from project flow changes or fluctuations where FYLF are being affected in any life stage.
5. Provide an index of changes in amphibian populations to stream flow modifications.

3.0 Study Area and Sampling Locations

<u>Known Sites Presence Monitoring</u>
Since initiating FYLF surveys in the SFAR reach in 2002, 34 sites have been surveyed one or more times (Table 1). In 2002, extensive surveys were performed throughout the South Fork

American River resulting in the identification of 28 sites. Ten of these 28 sites were documented as having FYLF present. In 2004, 14 sites were surveyed including four new sites that had not been surveyed previously. Of these 14 sites, eight sites were documented as having FYLF present during one or more of the surveys. In 2005, nine sites were surveyed including one new site that had not been surveyed previously. Each of these nine sites has been documented to support FYLF. In 2007, surveys will be performed at eight sites listed in the license (105R, 110R, 115T, 120R, 125T, 210DT, 220R and 246R) and four additional sites (106R, 124R, 207R, 213R). Monitoring at site 106R is very remote and can be hazardous under spring run-off conditions. Therefore monitoring at this site (or any site that is not safe to access) will be excluded from monitoring during hazardous conditions.

Following the completion of the 2007 monitoring, subsequent known site monitoring will be conducted every fifth year beginning in 2011. For subsequent years, the FS, ERC, and SWRCB may approve a subset of survey sites or a less intensive program, based on review of the first year's data. In the future, FS, ERC, and SWRCB may request additional breeding site habitat data to assess the cause of unexpected or chronic reproductive failures that may be related to Project operations. If the FYLF data are collected in the UARP relicensing, they can be used to satisfy this requirement after FS, ERC, and SWRCB approval. A list of sites for each subsequent monitoring year shall be approved at the first annual ERC meeting following the monitoring (example: 2011 sites shall be determined at the 2008 annual meeting).

Flow Fluctuation Monitoring

In addition to known site presence monitoring, flow fluctuation monitoring will be conducted in the first three years following license issuance (2007-2009) as required by Section 4(e) Condition No. 37 of the license. Flow fluctuation monitoring is required, June through September, when the following criteria are triggered:

- Stream flow in the South Fork American River at Kyburz (Gage A-12) is less than or equal to 100 cfs during June through September.
- Project operations have changed stream flow by 50 cfs or more in one day.

As discussed with the ERC following the 2005 surveys, sites 120R, 124R, 213R, and 220R are currently proposed for flow fluctuation monitoring to assess the effects of these changes on egg masses and tadpole displacement. Sites may be modified at the approval of the ERC, FS, and SWRCB.

4.0 Survey Protocol

Habitat Assessments and Visual Encounter Surveys

Habitat assessments and surveys will be performed following *A Standardized Approach for Habitat Assessments and Visual Encounter Surveys for the Foothill Yellow-Legged Frog (Rana boylii)* (Seltenrich and Pool 2002). The following enhancements will be added to the visual encounter surveys to better record information:

- All surveys will be conducted using a team of two surveyors.
- During egg mass and tadpole surveys, the team will include one snorkeling surveyor when feasible.

- Tributary surveys will extend 1000 feet from the confluence of the SFAR, if suitable habitat is present.

- Data sheets will include an additional set of data to record for egg mass and tadpole life stages. Specifically, egg mass data collection will include egg mass size, shape, color and developmental stage (Gosner 1960). Developmental stage will also be recorded for tadpoles. Data sheets to be used for all surveys are included as Appendix A.

Flow Fluctuation Monitoring

If the flow fluctuation criteria are triggered, surveys will be conducted for egg mass and/or tadpole displacement following the same protocols as specified above. Once the FS, ERC, and SWRCB determine that a certain level of flow change or fluctuation can occur without effects to egg mass or tadpole displacement, then only flow changes in greater magnitude than that already monitored would need to be checked. Thus, the monitoring program will address water velocities and discharge. To the maximum extent possible, EID will provide advance notification to the FS, ERC, and SWRCB of any known type of Project-related flow fluctuation between June and September. EID will attempt to monitor emergency Project-related flow changes prior to (if possible) and after any flow change that meets the criteria described above. Conclusions from such monitoring will be reported to the FS, ERC, and SWRCB within five days.

The FS, ERC, and SWRCB have the flexibility to alter the monitoring program methodologies and frequencies of data collection if it is determined that: (a) there is a more appropriate or preferable methodology to use than that described in the monitoring plan or (b) monitoring may be reduced or terminated because the relevant ecological resource objective has been met or no change in resource response is expected.

5.0 Reporting

The data collected under the monitoring protocols identified in this plan will be electronically compiled and distributed by January 31, to the FS, ERC, and SWRCB. A draft FYLF report will be circulated to the ERC for review and consideration at least two weeks prior to the annual meeting, which will occur by April 1. Based on the results of the annual meeting, EID will submit an annual report to FS, ERC, SWRCB, and FERC by June 30 of each year. The report will summarize the results of any ongoing monitoring or study efforts, any changes to be implemented under the license, and a summary of any unresolved issues and proposed actions to resolve each issue. All ERC members and FS and SWRCB will have 30 days to review and comment on the draft annual report prior to its submittal to FERC. The final annual report will be distributed to FS, ERC, and SWRCB after submission to FERC.

The annual report will include the issues addressed, objectives, study area including sampling locations, methods, and results. The report will also include relevant graphs and tables to describe FYLF results at all locations. Discussion appropriate to results and supportive of analyses and conclusions will be provided. All reports will be prepared in a format so that they can easily be reviewed by the ERC and filed with the Federal Energy Regulatory Commission (FERC) after approval. E-mail updates and CD of all reporting information will be provided to the ERC. Additionally, EID will coordinate with other agencies to share FYLF data or additional important information, where feasible.

6.0 Schedule

In 2007 two egg mass surveys, one mid-summer tadpole survey and one fall survey for juveniles will be performed at all breeding sites. In addition, tributaries will be surveyed one time during the late summer/early fall. The timing of the egg mass surveys will be determined by a combination of river flow levels and water temperature. The initial surveys will be conducted once temperature of the SFAR measured at the Akin Powerhouse has reached 12°C and river flows are <150 cfs. The second egg mass survey will be conducted approximately 2 to 3 weeks following the initial survey and will be intended to locate and enumerate any egg masses laid since the initial survey. The mid-summer tadpole survey will be conducted approximately 4 to 6 weeks following the second egg mass survey, and the fall surveys for juveniles will be conducted approximately 4 to 6 weeks following the tadpole survey (or late September depending on water year type). According to the license, for subsequent years the FS, ERC, and SWRCB may approve a subset of survey sites or a less intensive program, based on review of the first year's data. The proposed schedule and sampling locations for each monitoring year will be reviewed with the ERC during the Annual Review of Ecological Conditions required by Section 4(e) Condition No. 45 of the license.

7.0 Literature Cited

ECORP. 2002. Special-status Amphibian Surveys for the EID Project 184, El Dorado County, California. Prepared for Eldorado Irrigation District.

ECORP. 2005. Results of 2004 (Year 1) Amphibian Monitoring Program for Foothill Yellow-legged Frog and Mountain Yellow-legged Frog. El Dorado Hydroelectric Project (FERC Project No. 184).

EID. 2003. El Dorado Relicensing Settlement Agreement. El Dorado Project FERC Project 184.

Gosner, K.L. 1960. A simplified table for staging anuran embryos and larvae with notes on identification. Herpetologica 16:183-190.

GANDA 2007. Results of 2005 Surveys for Foothill Yellow-legged Frog (*Rana boylii*) on the South Fork American River**,** El Dorado County, California for the Eldorado

Hydroelectric Project (FERC No. 184). Prepared for Eldorado Irrigation District. February 2007.

Seltenrich, C.P. and A.C. Pool. 2002. A Standardized Approach for Habitat Assessments and Visual Encounter Surveys for the Foothill Yellow-Legged Frog (*Rana boylii*). May 2002. Pacific Gas and Electric Company, Technical and Ecological Services, unpublished report.

State Water Resources Control Board of California. 2006. Clean Water Act Section 401 Technically-Conditioned Water Quality Certification for Federal Energy Regulatory Commission El Dorado Hydroelectric Project (FERC No. 184).

United States Forest Service. 2003. Forest Service Final Terms and Conditions Provided Under 18 CFR 4.34(b)(1) In Connection With the Application for Relicensing of The El Dorado Hydroelectric Project (FERC No. 184). October 31, 2003.

Table 1. Summary of Project 184 foothill yellow-legged monitoring during 2002 to 2005 and proposed 2007 monitoring sites.

SITE	FYLF observed in 2002?	FYLF observed in 2004?	FYLF observed in 2005?	Settlement Agreement*	Proposed 2007 monitoring sites
105R	Y	Y	Y	Included	Y
106R	Y				Y
110R	Y	Y	Y	Included	Y
115T	Y	Y	Y	Included	Y
120R	Y	Y	Y	Included	Y
124R			Y		Y
125T	Y	Y	Y	Included	Y
126R	N				
130R	Y				
135R	N				
136R	N				
151R					
205DT	N				
207R	N	N			Y
210DT	Y	Y	N	Included	Y
213R	Y	Y	Y		Y
215T	N				
220R	Y	Y	Y	Included	Y
225T	N				
230DT	N				
235R	N	N			
240R	-				
245DT	N				
246R		N		Included*	Y
250DT	N				
251R		N		Included*	
255R	N				
260R	N				
265DT	N				
266R		N		Included*	
270DT	N				
271R		N		Included*	
605R	N				
610T	N				
615R	N				
Total sites	28	14	9	11*	11

*Settlement agreement required sites between Alder Creek (246R) and Kyburz Diversion (~270R) but specific sites (and number of sites) were not identified (SA page 54).

Appendix A: Habitat Assessments and Visual Encounter Surveys Datasheets

Foothill Yellow-Legged Frog

River Site Habitat Assessment

Date: mm____dd____yy____ Site #:_____ Subsite #:_____ River Name/Location:_____

USGS Quad: _____ Township: _____ Range:_____ Section:_____ ¼ Section:_____ Elevation:_____

GPS File Name: _____ Weather: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal

Total Site Length: _____ River Aspect: _____ Discharge (cfs) _____ Water Temp: (edgewater) _____ (main channel) _____

Observers: _____ _____ Initial Site Visit ☐ Follow-up Site Visit ☐

Photograph # (index to notebook): _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Roll/Disc/Card #:_____

AMPHIBIAN HABITAT TYPES:

- Boulder/Sedge Margin
- Side Channel
- Main Channel Pool
- Isolated/Scour Pool
- Pool Tail-Out/Pool Backwater
- Low Gradient Riffle
- Run/Glide
- Lateral Bar or Point Bar Bar gradient: low (<10º) moderate (10–20º) high (>20º)
- Cobble/Boulder Island
- Other:

_____

Site/Subsite: Location: right bank left bank Length: _____ Width: _____ Approximate Area (m^2): ____

HABITAT FEATURES:

% Margin Vegetation: _____ Type: forbs grass sedge rush blackberry other: _____

Dom.: ☐ ☐ ☐ ☐ ☐ ☐

% Emergent Vegetation: _____ Type: grass sedge rush pondweed other: _____

Dom.: ☐ ☐ ☐ ☐ ☐

% Submerged Vegetation: Type: algae rooted aquatic veg other:

_____ _____

Dom.: □ □ □
Type: rootwad aquatic veg. woody debris gaps between substrate other :
% Cover Aquatic: _____ _____

Dom.: □ □ □ □ □
Type: duff/leaf litter burrows woody debris undercut bank other:
% Cover Terrestrial: _____ _____

Dom.: □ □ □ □ □
% Overhanging Vegetation: Type: willow blackberry alder dogwood other:
_____ _____

Dom.: □ □ □ □ □
Type: willow ash alder maple oak conifer other:
% Riparian Canopy: _____ _____

Dom.: □ □ □ □ □ □ □
Aquatic Substrate silt/clay sand gravel/pebble cobble boulder bedrock _____
Substrate
Embeddedness: low (<25%) moderate (25-50%) high (>50%)

Dominant Substrate Shape: angular sub-angular rounded

River Habitat: riffle run glide pool cascade/pool step-pool _____ pocket water _____
River Gradient: low (0-2%) moderate (2-4%) high (4- Wetted Channel Width: Bankfull Width: _____
River Gradient Change:
No Yes higher lower
Change in River Habitat: _____
Rosgen Channel Type: A B C D DA E G
F

Water Color: clear discolored (tannins, etc.)

Water Turbidity: low moderate high

low (<15°) R / L mod (15-40°) R / L high (>40°) R / L Active Bank Erosion: Yes No

Bank Gradient:

Inundated River Bar: present absent Approximate Area (m^2) _____ Avg. Depth: _____ Velocity Range: _____

Average Depth: _____ Approximate Area: _____ Location in Site/Subsite: _____

Edgewater: Yes No

Tributary Nearby: Yes No Location: U/S D/S LB RB Distance: _____ Perennial Ephemeral

Upland Habitat Type: mixed conifer foothill hardwood/conifer foothill hardwood scrub/shrub

other:_____

Fish

Present: Yes No

Type: salmonid centrarchid cyprinid other: _____

tree frog _____ bullfrog _____ western pond turtle _____ garter snake _____

other_____

Herpetofauna & Life Stage (A J T E)

Other Species Observed:

_____

low mod high

Impacts to Amphibian Habitat (circle): grazing recreation industrial other: _____

Comments: _____

_____

_____

_____

_____

QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog

Creek Site Habitat Assessment

Date: mm____dd____yy____ Site #:_____ Subsite #: _____ Creek Name/Location:_____

USGS Quad: _____ Township: _____ Range:_____ Section:_____¼ Section:_____ Elevation: _____

GPS File Name: _____ Weather: *Sky*: *Overcast Partly Overcast Clear* *Wind:* *Inclement Fair Ideal*

Total Site Length: _____ Creek Aspect: _____ Discharge (cfs) _____ Water Temp: (edgewater) _____ (main channel) _____

Observers: _____ _____ Initial Site Visit ☐ Follow-up Site Visit ☐

Photograph # (index to notebook): _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Roll/Disc/Card #:_____

AMPHIBIAN HABITAT TYPES

- Pool
- Cascade/Pool
- Isolated/Scour Pool
- Pool Tail-Out/Pool Backwater
- Side Pool
- Bedrock Pool
- Side/Split Channel
- Low Gradient Riffle
- Run
- Other

_____

Site/Subsite: Length: _____ Width: _____ Approximate Area (m^2): _____

HABITAT FEATURES

% Margin Vegetation: _____ Type: forbs grass sedge rush blackberry other: _____

Dom.: ☐ ☐ ☐ ☐ ☐ ☐

% Emergent Vegetation: _____ Type: grass sedge rush pondweed other: _____

Dom.: ☐ ☐ ☐ ☐ ☐

% Submerged Vegetation: Type: algae rooted aquatic veg other:

_____ _____

Dom.: □ □ □
Type: rootwad aquatic veg. woody debris gaps between substrate other:
% Cover Aquatic: _____ _____

Dom.: □ □ □ □ □
Type: duff/leaf litter burrows woody debris undercut bank other:
% Cover Terrestrial: _____ _____

Dom.: □ □ □ □ □

% Overhanging Vegetation: Type: willow blackberry alder dogwood other:
_____ _____

Dom.: □ □ □ □ □

Type: willow ash alder maple oak conifer other:
% Riparian Canopy: _____ _____

Dom.: □ □ □ □ □ □ □

Aquatic Substrate (%): silt/clay sand gravel/pebble cobble boulder bedrock _____
Substrate
Embeddedness: low (< 25%) moderate (25-50%) high (> 50%)

Dominant Substrate angular sub-angular rounded
Creek riffle: run: glide: ____ pool: cascade/pool: ____ step-pool: ____ pocket water: ____
Creek Gradient: low (0-2%) moderate (2-4%) high (4-10+%)
Change in Creek Habitat:
Creek Gradient Change: No Yes higher lower _____

Rosgen Channel Type: A B C D DA E F G
Wetted Channel Width: _____ Bankfull Width: _____
Water Turbidity: low moderate high Water Color: clear discolored (tannins, etc.)
Bank Gradient: low (<15°) R / L mod (15-40°) R / L high (>40°) R / L Active Bank Erosion: Yes No

Tributary Nearby: Yes No Location: U/S D/S LB RB Distance: _____ Perennial

Upland Habitat Type: mixed conifer foothill hardwood/conifer foothill hardwood scrub/shrub other:

Fish

Present: Yes No

Type: salmonid centrarchid cyprinid other: _____

Herpetofauna & Life Stage (A J T E) tree frog _____ bullfrog _____ w. pond turtle _____ garter snake _____ other: _____

Other Species Observed:

Impacts to Amphibian Habitat: grazing recreation industrial other: _____ low mod high

Comments: _____

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_____ QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog
River and Creek Visual Encounter Survey Data Sheet
Egg Masses

Date: mm____ dd____ yy____ Site #: _____ Subsite #: _____ River Name/Location: _____ Observers: _____ _____
Survey Method: tandem separate Start Time: _____ End Time: _____ Actual VES Time: _____ Start Air Temp: _____ End Air Temp: _____
Water Temp: (edgewater) _____ (main channel) _____ (pool) _____ Discharge: _____ cfs Total Site Length: _____ Subsite Length: _____
Search Area Length: _____ Search Area Width: _____ Total Area Searched: (m^2): _____ Site Visit: 1 2 3 4
Weather: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal Past 24 hrs: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal
Photograph # (index to notebook): _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Roll/Disc/Card #: _____

Egg Mass Letter[1]	No. of Egg Masses	Dist.[2] (m)	Dist. from Shore (m)	Depth of Egg Mass (cm)	Max. Water Depth[3] (cm)	Egg Mass Orient-ation[4]	Flow Orien-tation[5]	Surface Velocity	Velocity at Egg Mass[6] (cm/sec)	Egg Mass Attach-ment Substrate[7]	Substrate at Egg Mass[8]	Egg Mass Width (cm)	Egg Mass Shape[9]	Egg Mass Color[10]	% Silt on Egg Mass[11]	Gosner Stage[12]	Micro-habitat[13]	River and Creek Habitat[14]	Water Temp (°C)

[1] Egg Mass Letter – for individual egg masses or groups of egg masses

[2] Distance – distance from bottom of site/subsite to egg mass

[3] Max. Water Depth – total depth at egg mass location

[4] Egg Mass Orientation – (1) upstream side, (2) downstream side, (3) shore side, (4) stream side, (5) on top of substrate, (6) underneath substrate

[5] Flow Orientation – (1) oriented into flow, (2) sheltered from flow, (3) flow along side of egg mass, (4) egg mass in eddy current, (5) flow over the top, (6) no flow

[6] Velocity at Egg Mass – flow taken in water column as close to egg mass as possible

[7] Egg Mass Attachment Substrate – (1) sand, (2) gravel/pebble (3) cobble, (4) boulder, (5) bedrock, (6) small woody debris, (7) large woody debris, (8) other, (9) detached

[8] Substrate at Egg Mass – (1) silt/clay/mud, (2) sand, (3) gravel/pebble, (4) cobble, (5) boulder, (6) bedrock, (7) small woody debris, (8) large woody debris.

[9] Egg Mass Shape – (1) Spherical, (2) Flattened, (3) Oblong,

(4) Frayed (partially scoured), (5) Partially Hatched, (5) Hatched, (6) Desiccated (exposed), (7) Partial (predation)

[10] Egg Mass Color – (1) Blue (fresh), (2) Brown (silt), (3) Clear/Black (mature), (4) Opaque, (5) Fungal

[11] % Silt on Egg Mass – (1) none, (2) < 25%, (3) 25 – 50%, (4) 51 – 75%, (5) > 75%

[12] Gosner Stage (e.g., GS15)

[13] Microhabitat – (1) isolated side pool, (2) connected side pool, (3) scour pool, (4) backwater pool, (5) side channel, (6) boulder/sedge, (7) edgewater, (8) pool tail-out (9), riffle,

(10) other

[14] River and Creek Habitat – (1) low gradient riffle, (2) high gradient riffle, (3) run, (4) glide, (5) main channel pool (6) step-pool, (7) other

Note: On return visits note condition of egg masses – hatched, detached partially or entirely from substrate, attacked by fungus, predated upon, etc.

Fish Present: Yes No Type: Salmonid Centrarchid Cyprinid Other: _____

Herpetofauna & Life Stage (A J T E) tree frog _____ bullfrog _____ western pond turtle _____ garter snake _____ Other _____

Other Species Observed: _____

Comments: _____

_____

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_____QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog
River and Creek Visual Encounter Survey Data Sheet
Egg Masses

Date: mm____ dd____ yy____ Site #: _____ Subsite #: _____ River Name/Location: _____ Observers: _____ _____

Egg Mass Letter[1]	No. of Egg Masses	Dist.[2] (m)	Dist. from Shore (m)	Depth of Egg Mass (cm)	Max. Water Depth[3] (cm)	Egg Mass Orient-ation[4]	Flow Orien-tation[5]	Surface Velocity	Velocity at Egg Mass[6] (cm/sec)	Egg Mass Attach-ment Substrate[7]	Substrate at Egg Mass[8]	Egg Mass Width (cm)	Egg Mass Shape[9]	Egg Mass Color[10]	% Silt on Egg Mass[11]	Gosner Stage[12]	Micro-habitat[13]	River and Creek Habitat[14]	Water Temp (°C)

Comments: _____

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_____QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog

River and Creek Visual Encounter Survey Data Sheet

Tadpoles

Date: mm____ dd____ yy____ Site #: _____ Subsite #: _____ River Name/Location: _____ Observers: _____ _____

Survey Method: tandem separate Start Time: _____ End Time: _____ Actual VES Time: _____ Start Air Temp: _____ End Air Temp: _____

Water Temp: (edgewater) _____ (main channel) _____ (pool) _____ Discharge: _____ cfs Total Site Length: _____ Subsite Length: _____

Search Area Length: _____ Search Area Width: _____ Total Area Searched: (m^2): _____ Site Visit: 1 2 3 4

Weather: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal Past 24 hrs: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal

Photograph # (index to notebook): _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Roll/Disc/Card #: _____

Group Letter[1]	Distance[2] (m)	Approx. No. of Tadpoles[3]	Distance From Shore[4]	Max. Water Depth[5] (cm)	Velocity[6] (cm/sec)	Tadpole Stage[7]	Gosner Stage[8]	Avg. TL[9] (mm)	% Algae	% Detritus	Dominant Substrate[10]	Micro-Habitat[11]	River or Creek Habitat[12]	Water Temp. (°C)

[1] Group Letter – if multiple groups of tadpoles at a site/subsite

[2] Distance – distance from bottom of site/subsite

[3] No. of Tadpoles – Estimate the total number of tadpoles for the area. If tadpole counts are determined by number/meter^2, convert number of tadpoles/m^2 to number of tadpoles/site/subsite

[4] Distance From Shore –For an aggregation of tadpoles, measure to the center of the group. If tadpoles are dispersed along the shoreline, record an average distance from the water's edge.

[5] Max. Water Depth – Max. depth at tadpole location

[6] Velocity – measure where tadpoles are located

[7] Tadpole Stage – (1) no legs, (2) rear legs, (3) rear legs and front nubs, (4) legs fully grown, but with tail, (5) mixed

[8] Gosner Stage or Field Stage (e.g., GS 36 *or* FS 3)

[9] Avg. TL – average total length of tadpoles

[10] Dominant Substrate – (1) silt/clay/mud, (2) sand, (3) gravel/pebble, (4) cobble, (5) boulder, (6) bedrock, (7) small woody debris, (8) large woody debris (9) aquatic vegetation

[11] Microhabitat – (1) isolated side pool, (2) connected side pool, (3) scour pool, (4) backwater pool, (5) side channel, (6) boulder/sedge, (7) edgewater, (8) pool tail-out, (9) riffle, (10) other

[12] River or Creek Habitat (1) low gradient riffle, (2) high gradient riffle, (3) run, (4) glide, (5) main channel pool, (6) step-pool, (7) other

Fish Present Yes No Type: Salmonid Centrarchid Cyprinid Other: _____

Herpetofauna & Lifestage (A J T E) tree frog _____ bullfrog _____ western pond turtle _____ garter snake _____ Other _____

Other Species Observed: _____

Comments: _____

_____

_____

_____

_____

_____

QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog
River and Creek Visual Encounter Survey Data Sheet
Tadpoles

Date: mm____ dd____ yy____ Site #: _____ Subsite #: _____ River Name/Location: _____ Observers: _____ _____

Group Letter[1]	Distance[2] (m)	Approx. No. of Tadpoles[3]	Distance From Shore[4]	Max. Water Depth[5] (cm)	Velocity[6] (cm/sec)	Tadpole Stage[7]	Gosner Stage[8]	Avg. TL[9] (mm)	% Algae	% Detritus	Dominant Substrate[10]	Micro-Habitat[11]	River or Creek Habitat[12]	Water Temp. (°C)

Comments: _____

_____
_____
_____
_____
_____
_____
_____

QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog

River and Creek Visual Encounter Survey Data Sheet

Juveniles/Subadults and Adults

Date: mm____ dd____ yy____ Site #: _____ Subsite #: _____ River Name/Location: _____ Observers: _____ _____

Survey Method: tandem separate Start Time: _____ End Time: _____ Actual VES Time: _____ Start Air Temp: _____ End Air Temp: _____

Water Temp: (edgewater) _____ (main channel) _____ (pool) _____ Discharge: _____ cfs Total Site Length: _____ Subsite Length: _____

Search Area Length: _____ Search Area Width: _____ Total Area Searched: (m^2): _____ Site Visit: 1 2 3 4

Weather: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal Past 24 hrs: *Sky*: Overcast Partly Overcast Clear *Wind:* Inclement Fair Ideal

Photograph # (index to notebook): _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ Roll/Disc/Card #: _____

Number of Frogs	Distance[1]	Sex (M/F)	Age[2] (J, A)	Snout-Vent Length (mm)	Activity[3]	River or Creek Habitat[4]	Microhabitat Type[5]	Dominant Substrate[6]	Comments

[1] Distance – distance from bottom of site/subsite to frogs

[2] Age – J = Juvenile/Subadult (<= 39 mm), A = Adult (>= 40 mm), snout-vent length

[3] Activity – (1) sitting in shade, (2) basking, (3) hiding, (4) calling, (5) swimming, (6) foraging, (7) amplexus, (8) floating, (9) underwater, (10) other

[4] River or Creek Habitat – (1) low gradient riffle, (2) high gradient riffle, (3) run, (4) glide, (5) main channel pool, (6) step-pool, (7) other

[5] Microhabitat – (1) isolated side pool, (2) connected side pool, (3) scour pool, (4) backwater pool, (5) side channel, (6) boulder/sedge, (7) edgewater, (8) pool tail-out, (9) riffle, (10) exposed bank, (11) protected bank, (12) other

[6] Dominant Substrate – (1) silt/clay/mud, (2) sand, (3) gravel/pebble, (4) cobble, (5) boulder, (6) bedrock, (7) small woody debris, (8) large woody debris, (9) aquatic vegetation, (10) margin vegetation, (11) other

Fish Present Yes No Type: Salmonid Centrarchid Cyprinid Other: _____

Herpetofauna & Lifestage (A J T E) tree frog _____ bullfrog _____ western pond turtle _____ garter snake _____ Other _____

Other Species Observed: _____

Comments:

_____

_____

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_____

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_____

_____

QA/QC (initials): _____ Date: _____

Foothill Yellow-Legged Frog

River and Creek Visual Encounter Survey Data Sheet

Juveniles/Subadults and Adults

Date: mm____ dd____ yy____ Site #: _____ Subsite #: _____ River Name/Location: _____ Observers: _____ _____

Number of Frogs	Distance[1]	Sex (M/F)	Age[2] (J, A)	Snout-Vent Length (mm)	Activity[3]	River or Creek Habitat[4]	Microhabitat Type[5]	Dominant Substrate[6]	Comments

Comments:

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QA/QC (initials): _____ Date: _____

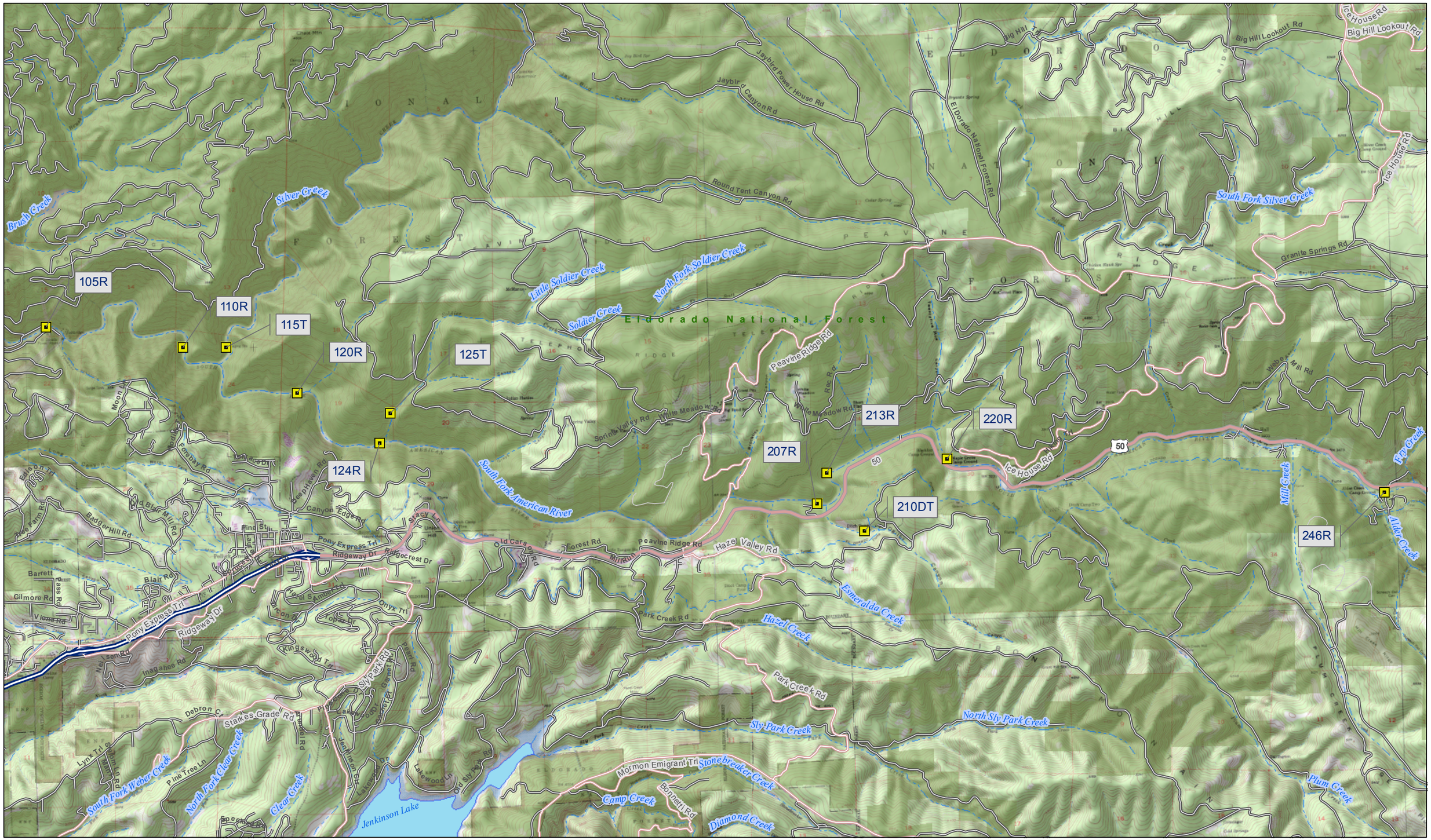

Figure 1: EID FYLF Suvey Sites

El Dorado County, California

120 FERC ¶ 62,193
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

El Dorado Irrigation District Project No. 184-126

ORDER APPROVING FOOTHILL YELLOW LEGGED FROG MONITORING PLAN PURSUANT TO ARTICLE 401

(Issued September 19, 2007)

On July 26, 2007, the El Dorado Irrigation District (licensee) filed a plan to monitor foothill yellow-legged frogs (FYLF) pursuant to article 401 and Condition 37 of the Order Issuing New License for the El Dorado Project, issued on October 18, 2006.[1] The El Dorado Project is located on the South Fork of the American River and its tributaries in El Dorado, Alpine, and Amador Counties, California. The project is partially located within the Eldorado National Forest.

Article 401 requires that the FYLF management plan required by the U.S. Forest Service (FS) section 4(e) condition 37 and the State Water Resources Control Board (SWRCB) Section 401 Clean Water Act Water Quality Certificate Condition No. 13, be filed for Commission approval.

FS's Condition 37 and the SWRCB's condition 13, both in part, require the licensee to conduct protocol surveys for sensitive species in a sub-sample of appropriate habitat types to document species presence and distribution. The licensee shall identify amphibian breeding and larval periods in project-affected reaches by periodically surveying reaches of known presence during spring/summer. The final plan shall be prepared in consultation with the FS, the Ecological Resources Committee (ERC), and SWRCB and approved by the FS and the SWRCB.

In its filed plan, the licensee proposes to identify breeding and larval periods for the FYLF at the project, determine timing and success of FYLF egg, larvae, and metamorph stages, estimate probability of over-wintering success, determine at what level project flow changes affect FYLF, and provide an index of changes in amphibian populations to stream flow modifications. The plan describes sampling locations and a schedule for conducting surveys as well as flow fluctuation monitoring. The plan includes a description of the survey protocol and triggers for modifications to the survey protocols.

[1] 117 FERC ¶ 62,044.

The licensee will prepare an annual report that summarizes the results of any ongoing monitoring or study efforts, any changes to be implemented under the license, and a summary of any unresolved issues and proposed actions to resolve each issue. All ERC members, FS, and the SWRCB will have 30 days to review and comment on the draft annual report prior to submission to the Commission. The report will be filed with the FS, ERC, SWRCB, and the Commission by June 30 of each year.

The plan was prepared in consultation with the FS, SWRCB, and the ERC. The FS approved the plan in a letter dated May 21, 2007 and the SWRCB approved the plan in a letter dated July 24, 2007.

The plan for monitoring FYLF, filed July 26, 2007, should assist in determining the affects of stream flow changes on FYLF. The filed plan satisfies the requirements of article 401 and FS Condition 37 and SWRCB Condition 13; this plan should be approved.

The Director orders:

(A) The foothill yellow-legged frog monitoring plan filed July 26, 2007, pursuant to article 401, Forest Service Condition 37, and State Water Resources Control Board Condition 13 of the Order Issuing New License for the El Dorado Project, is approved.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

Steven G. Naugle
Acting Chief, Lands Resources Branch
Division of Hydropower
Administration and Compliance