



THE CENTRAL VALLEY HABITAT EXCHANGE: QUANTIFYING BENEFITS FOR MULTIPLE SPECIES

AMY MERRILL, PH.D., STILLWATER SCIENCES

DANIEL KAISER, EDF; JOHN CAIN, AMERICAN RIVERS; NAT SEAVY, POINT BLUE;
RENE HENERY, TROUT UNLIMITED; JACOB KATZ, CALTROUT

TALK OUTLINE

- What is the Central Valley Habitat Exchange?
- What is the multispecies Habitat Quantification Tool?
- How does the HQT stand up to field testing?
- What lessons have we learned?



**Program Area: California
Central Valley**

- 22,000 square miles
- ¼ of Nation's food
- \$17 billion in crop production
- Over 95% private lands



Can we re-integrate wildlife in the Central Valley?



CENTRAL VALLEY HABITAT EXCHANGE



- Exchange payment for high quality habitat
- Regulatory and voluntary arenas
- Keeps agricultural land productive while increasing functional habitat



CENTRAL VALLEY HABITAT EXCHANGE



- Targets at-risk species
- Driven by species' direct needs
- Includes one to multiple species



CENTRAL VALLEY HABITAT EXCHANGE



CVHE: TOOL DEVELOPMENT PROCESS

SWAINSON'S
HAWK



RIPARIAN
LAND BIRDS



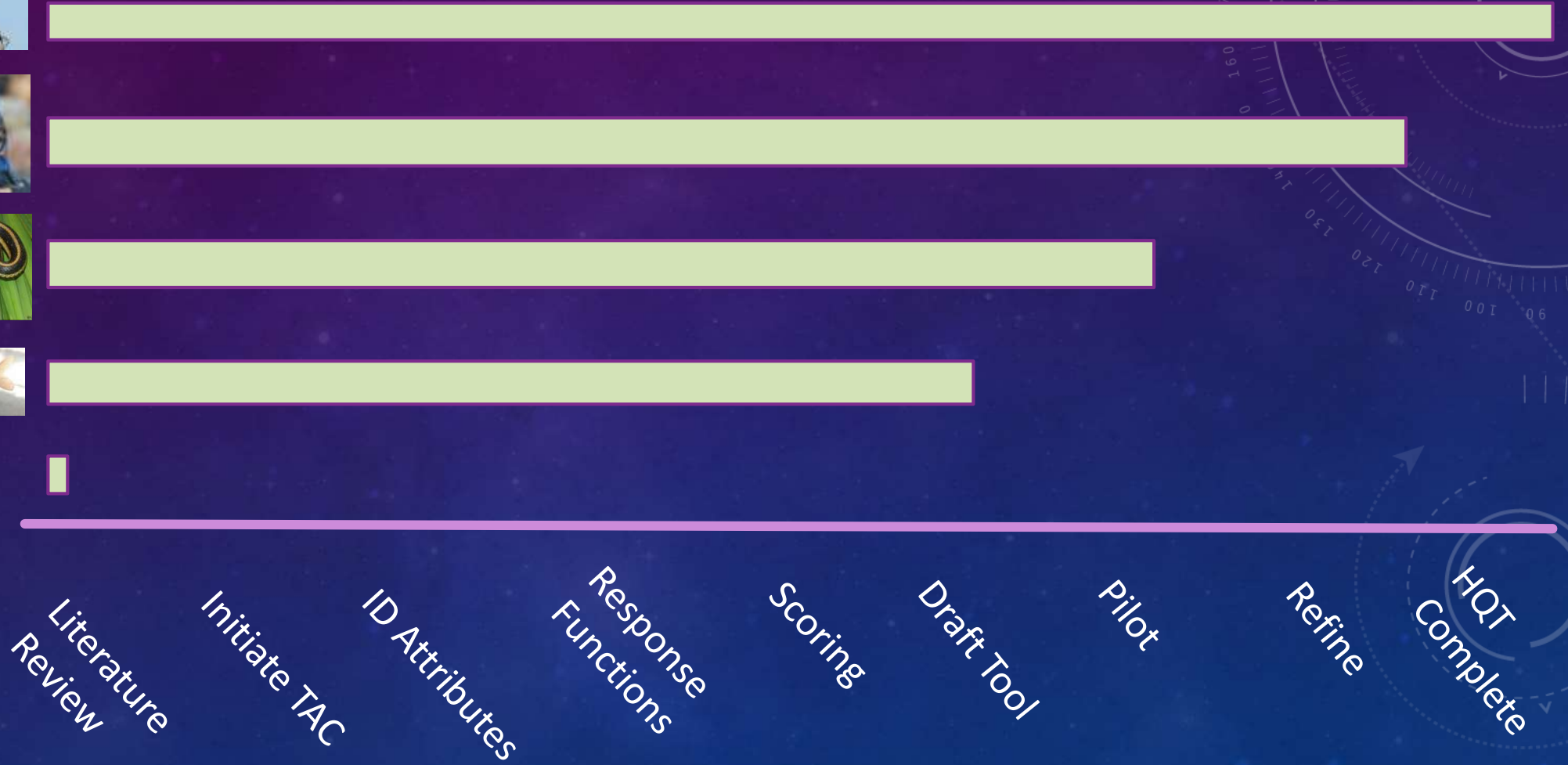
GIANT GARTER
SNAKE



CHINOOK
SALMON



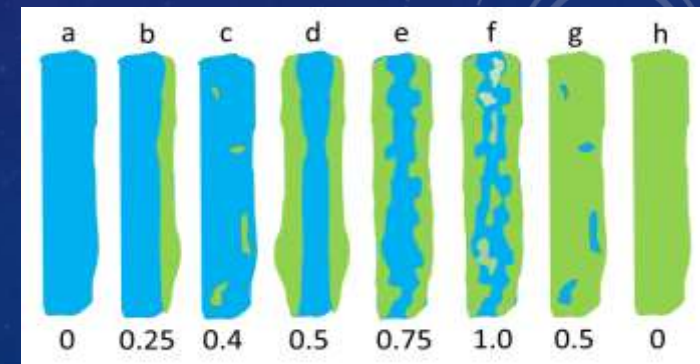
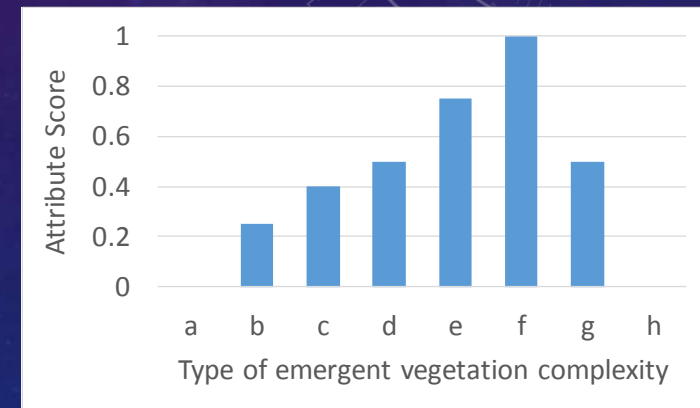
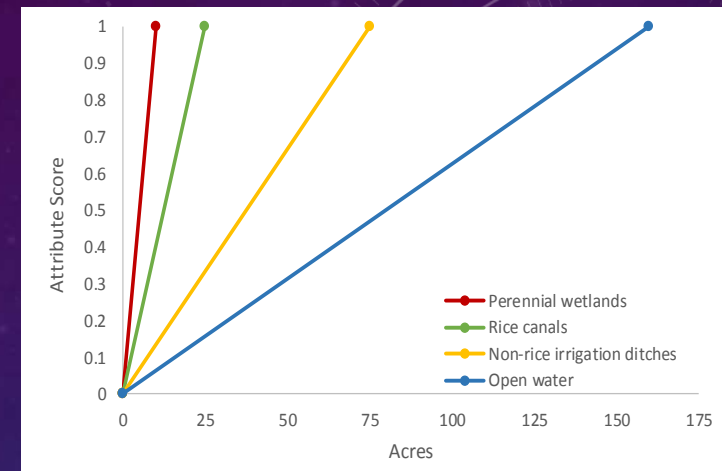
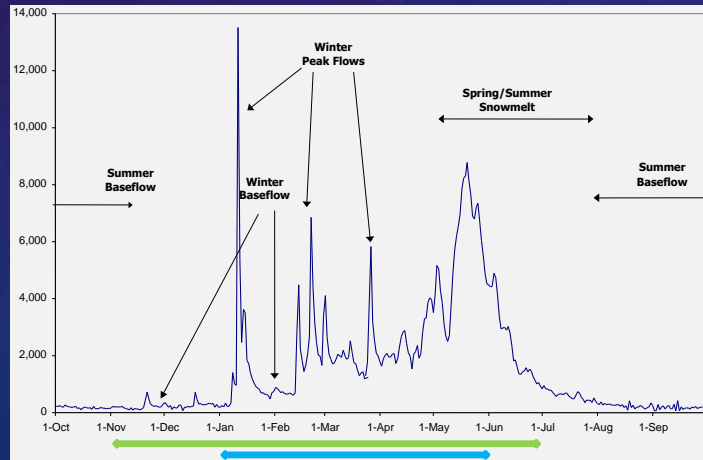
TBD



SCIENTIFIC DOCUMENTATION OF DECISIONS AND EVIDENCE

Work with Species Experts to Develop HQT

- Keep grounded in most up-to-date knowledge
- Document all of decision points for re-visitation
- Stick to principle of being true to species
- Simple is better unless justified



Excel

- # Companion Spatial Mapping

- ## Support Documents

- RLB_FSH_SWHA_GGS_COMBO_HQCT_Nov_26_2016.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View Tell me what you want to do

K14
✖ ✓ *f*

Species and Status of Species Habitat Score Sheet																
No data entry required. DO NOT DELETE or ENTER DATA INTO CELLS.																
SITE		Hypothetical														
Assessor																
SWANSON'S HAWK LANDSCAPE PRIORITY																
Number	Habitat attribute	Type	Weight	Assess	Score	Wt'd Score										
1	SWHA regional density	Brookfield	0.25	3	0.75	0.25										
2	Distance to off-site prior nesting (km)	Threshold	0.05	0.5	0.025	0.025										
3	Density of off-site prior nesting within 5 km of project area boundary (number of pairs)	Brookfield	0.05	9	0.45	0.025										
4	Proximity to off-site foraging habitat, within 10 km (1 mi) buffer of project area boundary; the total percent average needs to equal 100%	Brookfield		Count Type	Percent Average											
				Wildlife	25	100	0.25									
				Brookfield	25	100	0.25									
				Brookfield	25	100	0.25									
				Brookfield	25	100	0.25									
5	On-site nest tree density (Percent density within 10 km (1 mi) buffer of project area boundary)	Brookfield	0.25	0.5	0.125	0.25										
6	Extent of protected SWHA habitat within 5 km (5 mi) of project area boundary (ac)	Brookfield	0.25	>100	0.5	0.125										
Total SWHA Landscape Priority Habitat Score						1.00	30%									
SWANSON'S HAWK SITE FORAGING CAPACITY							Map Units									
Number	Habitat attribute	Type	Weight	Score	Wt'd Score	Total	1	2	3	4	5	6	7	8	9	10
1	Protecode (use in Project Area)	Forest/any		NA												
2	Forest (Forest for 100 as to cover)	Threshold	0.05	100	0.5	0.5	100	100	100	100	100	100	100	100	100	100
3	Vegetation and Management (score for full riparian)	Threshold	0.05	100	0.5	0.5	100	100	100	100	100	100	100	100	100	100
4	Protecode (score, score)	Brookfield	0.1	100	0.1	0.1	100	100	100	100	100	100	100	100	100	100
5	Protecode (score)	Brookfield	0.1	100	0.1	0.1	100	100	100	100	100	100	100	100	100	100
Foraging Habitat Score per Map Unit (for full riparian (not including any))						0.5	100	100	100	100	100	100	100	100	100	100
Foraging Habitat Score per Map Unit (for full riparian (not including any))						0.5	100	100	100	100	100	100	100	100	100	100
Size of foraging habitat (40 to 100 as linked to increasing quality)						Threshold	0.05	1	0.05							
Total SWHA Site Capacity Foraging Score						0.5	0.5									
SWANSON'S HAWK SITE NESTING SCORE							Map Units									
Number	Habitat attribute	Type	Weight	Score	Wt'd Score	Total	1	2	3	4	5	6	7	8	9	10
1	Nest Tree (Point) (based on number and tree environment)	Necessity	0.75	100	0.75	0.75	100	100	100	100	100	100	100	100	100	100
2	Substrate nest tree density	Brookfield	0.25	100	0.25	0.25	100	100	100	100	100	100	100	100	100	100
3	On-site prior nesting (Y/N)	Brookfield	0.25	1	0.25	0.25	100	100	100	100	100	100	100	100	100	100
Total SWHA Site Capacity Nesting Habitat Score						1.25	1.25									
SWANSON'S HAWK SITE CAPACITY SCORE																

16 Pilot Site Studies to Date*

- Refine HQT, improve usability
- Learn more on habitat management
- Discover 'knots' that the Exchange can help unravel
- Discover new synergies with agricultural production
- Identify easy 'gives' from land owners that are large 'gets' for species



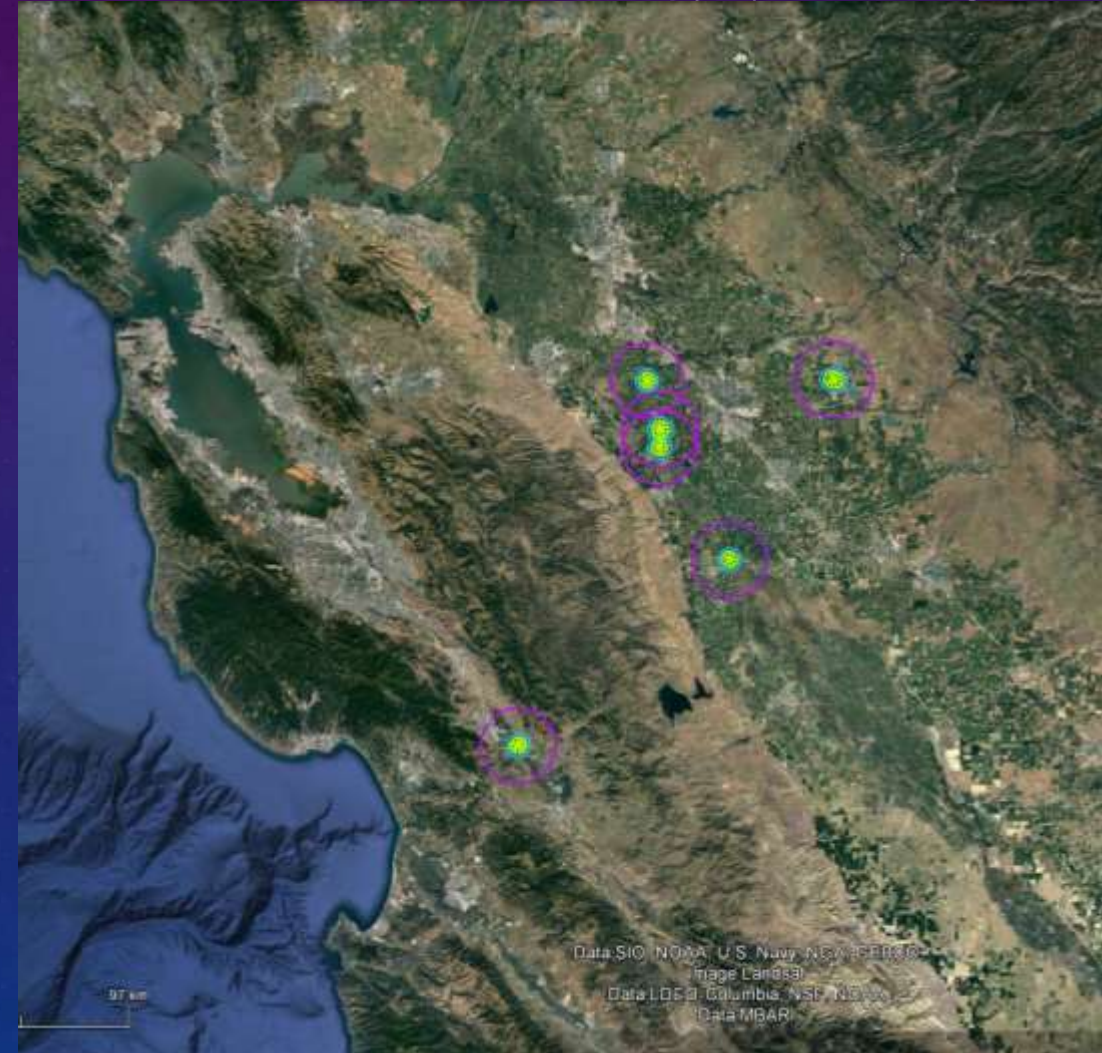
FIELD TEST RIPARIAN LAND BIRD HQT



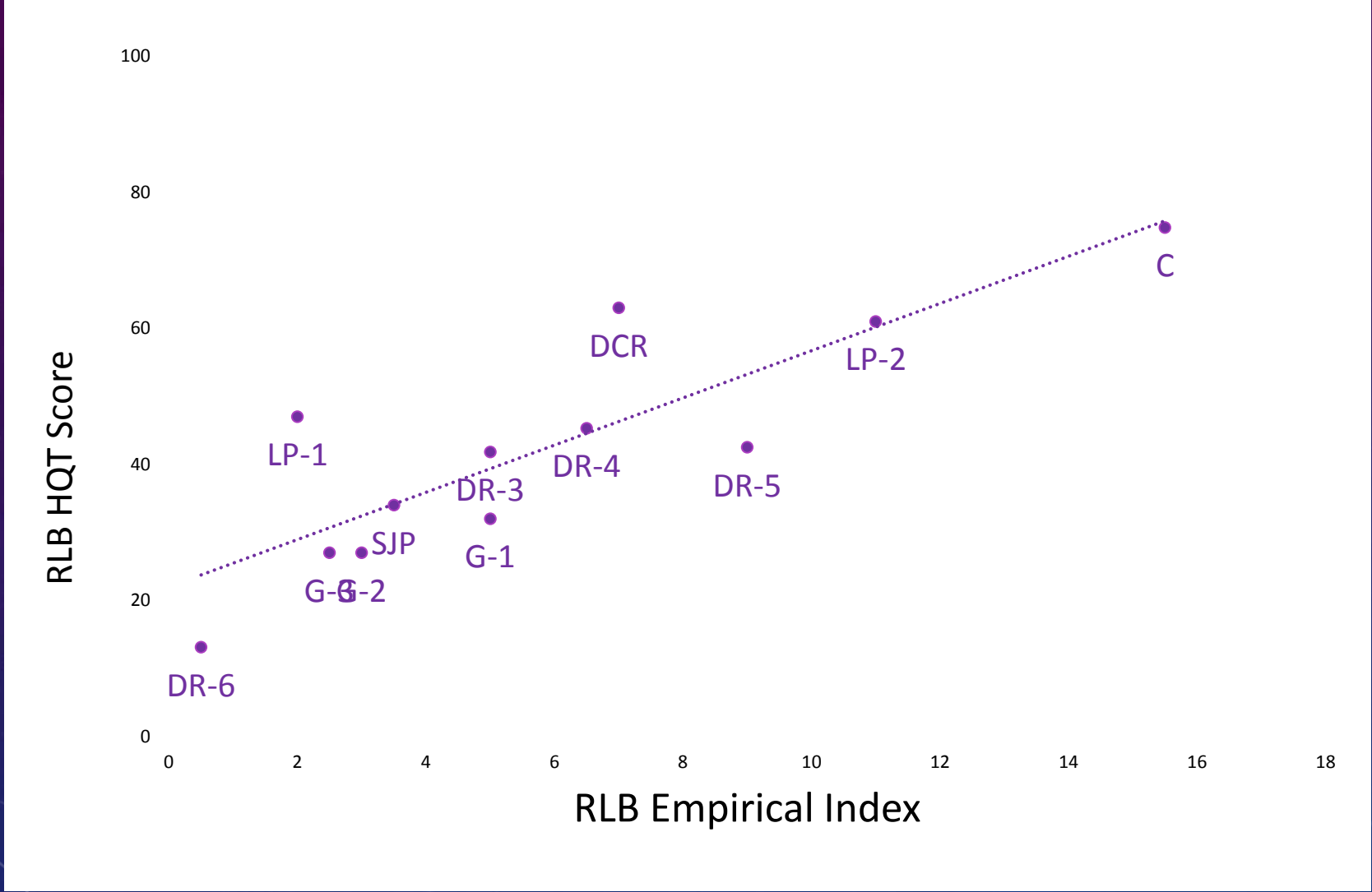
FIELD TEST RIPARIAN LAND BIRD HQT

12 Sites in Central Valley

- Point Blue - area search RLB surveys¹
- RLB index: species occurrence x strength of association with riparian vegetation²
- Stillwater - HQT field and map data
- Complete RLB HQTs for each site



FIELD TEST RIPARIAN LAND BIRD HQT



$R^2=0.7208$



Central Valley Habitat Exchange: What have we learned?

Communicate

- Talk a lot with a lot of people!
- Present, discuss tool contents
- Diverse Audiences:
 - Land owners
 - Agency personnel
 - Local Planners and Conservancies
 - Wildlife and Restoration Scientists



Central Valley Habitat Exchange: What have we learned?

Be Transparent and Accessible

- Document your thinking and evidence
- Make tools accessible and easy to use
- Keep flexible to accommodate new needs



Central Valley Habitat Exchange: What have we learned?

Stand by the Species

- Enlist the best to advise for species
- Ingenuity is your friend
- Separate science from policy





GRATITUDE for PARTNERS

Environmental Defense Fund

Environmental Incentives

American Rivers

Point Blue Science

Trout Unlimited

CalTrout

CA Department of Water Resources

GRATITUDE for FUNDERS

**USDA Conservation Innovation Grants
Program**

Bechtel Foundation



Stillwater Sciences