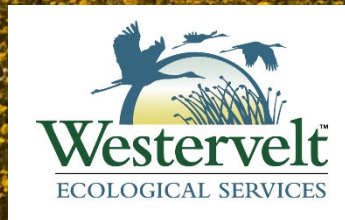


Webinar 6- LONG-TERM MANAGEMENT and STEWARDSHIP

Matt Gause
Westervelt Ecological Services



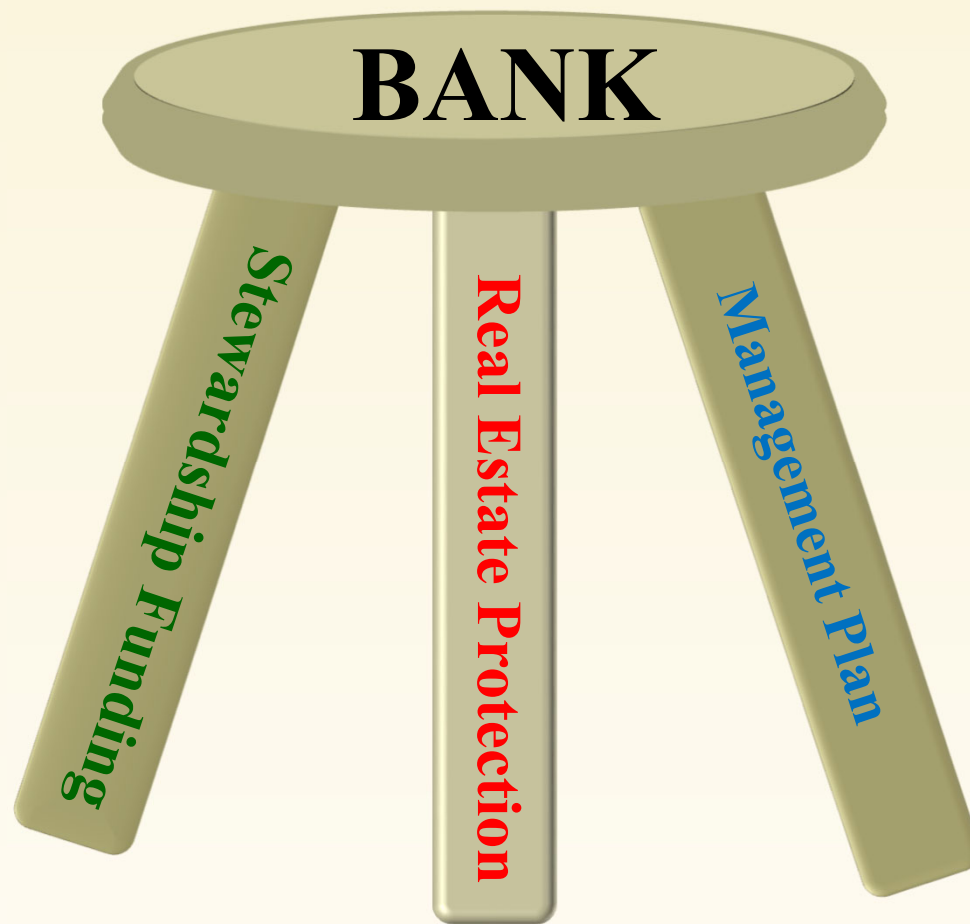
Conservation is a Long-term Commitment



Acquisition ≠ Protection



What Sets Banks Apart?





Regulatory Framework - CDFW

CA FGC §2081:

- “fully mitigate” code §2081. (b) (2) *“All required measures shall be capable of successful implementation.”*
- §2081. (b) (3) *“The applicant shall ensure adequate funding to implement the measures required by paragraph (2), and for monitoring compliance with, and effectiveness of, those measures.”*

CA DFW banking guidance:

- *“Does the long-term management plan contain sufficient certainty that the perpetual management of the bank site will adaptively provide for the target species/resource needs over time; and”*
- *“Does the proposal include sufficient financial assurances to carry out any enhancement, restoration, or creation, and interim and long-term management? “*





Regulatory Framework - USFWS

1981 Mitigation Guidelines (Federal Register, Vol. 46, No. 15, January 23, 1981, as corrected in the Federal Register of February 4, 1981)

- **2.15 Responsibility for Implementing.** *"...and that they [federal action agency] provide for a duration of effectiveness for the life of the project, plus such additional time required for the adverse effects of an abandoned project to cease to occur."*





Regulatory Framework - USACE

2008 Mitigation Rule

- 33 CFR 332.4(c) requires Long Term Management Plan and Adaptive Management Plan
- 33 CFR 332.7
 - Identify Responsible Party
 - Address funding for Long Term Management



The Management Plan



Management Objectives and Activities

Site Selection



Photo William Bollfrass III

Management Objectives and Activities

Site Selection



Management Objectives and Activities



Habitat Preserve

Site Selection

594 ft

Imagery Date: Mar 27, 2009

lat 38.650748° lon -121.177610°

Eye alt 2054 ft

Google

The Management Plan

- Long-term management plan topics
 - Baseline Site Data
 - Management Personnel
 - Prohibited Activities
 - Resource Goals and Objectives
 - Management Activities
 - Facility and Infrastructure Maintenance
 - Monitoring & Reporting
 - Agency Notification
 - Adaptive Management
 - Funding and Task Prioritization

A low-angle photograph of a dense forest. The camera is positioned on the ground, looking up at several tall, slender tree trunks that rise vertically towards the top of the frame. The canopy is thick with vibrant green leaves, and sunlight filters through the branches, creating a dappled light effect. The overall atmosphere is bright and natural.

Allowed and Prohibited Activities

Resource Goals and Objectives

“ ... to support the flora and fauna that the Bank was established to protect (Conservation Values), in perpetuity...”

Resource Goals and Objectives

A hand is holding a clear plastic cup filled with water. Inside the cup, numerous small, colorful organisms, likely crustaceans, are visible. The background shows a blurred landscape of a wetland with green vegetation and a blue sky.

Goal A.2 Maintain suitable habitat conditions for listed vernal pool crustaceans

Objective A.2.1: Manage and maintain characteristic water inflow and outflow of both occupied and unoccupied vernal pool and seasonal wetland features (i.e., maintain characteristic hydrology)

Management Activities





Range of Management Activities

- **Relatively simple:**
Meridian Ranch – vernal pool landscape. Uses grazing as a key management tool.
- **Relatively complicated:**
Sutter Basin Conservation Bank – active water and habitat management for Giant Garter Snake.





Management Activities

5.3.2 Thatch Management

- 5.3.2.1 Grazing
- 5.3.2.2 Mowing
- 5.3.2.3 Controlled Burns





Maintenance Activities





Maintenance Activities



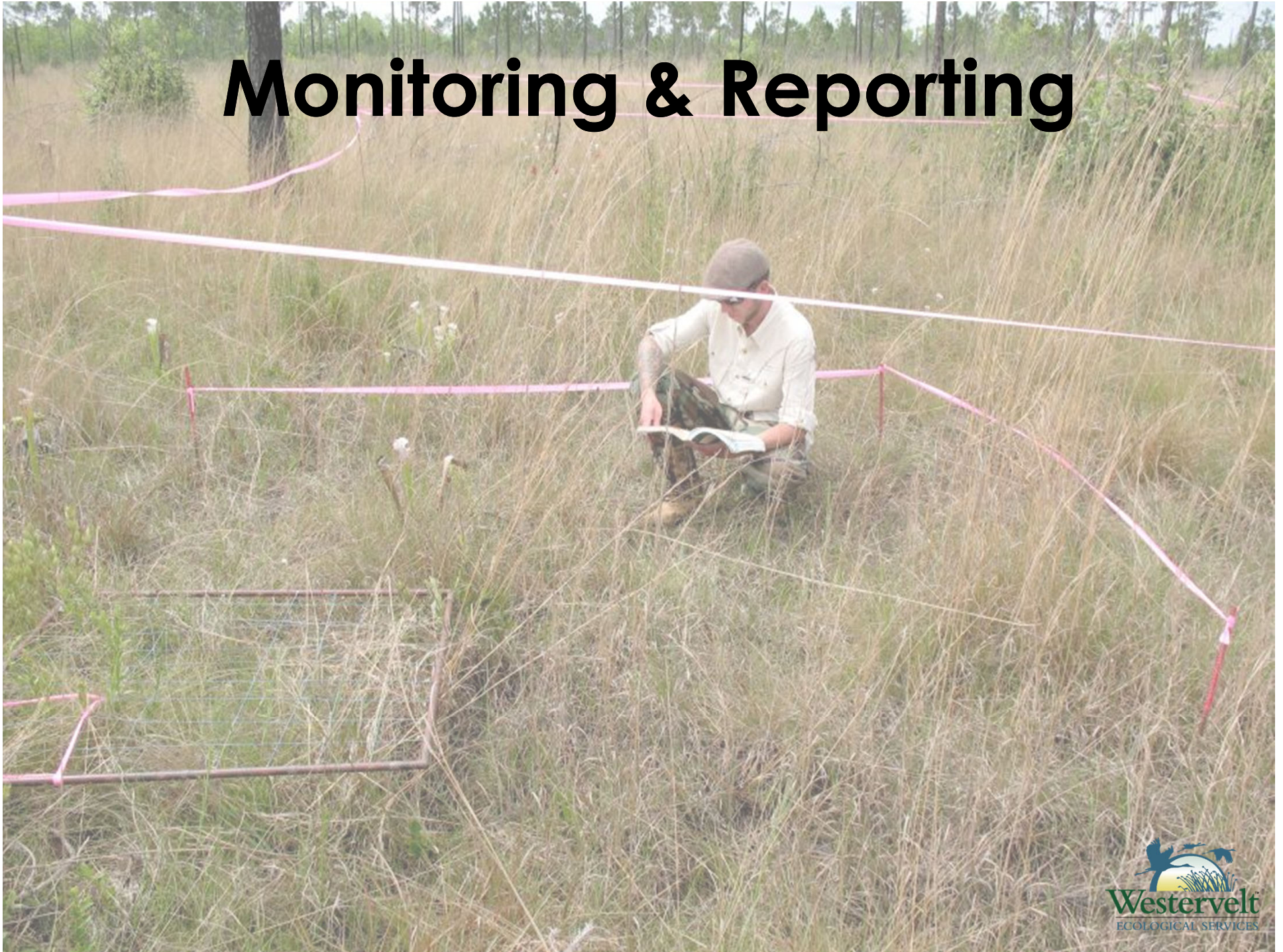
Monitoring & Reporting



What do we need to know to inform management?



Monitoring & Reporting



Qualitative Monitoring

Element A.1 - Task 1: During at least one of the surveys (defined as the Annual Walk-through Survey) qualitative monitoring of the general condition of these habitats will be conducted. General topographic conditions, hydrology, general vegetation cover and composition, invasive species, erosion, will be noted, evaluated and mapped during a site examination in the spring. Notes to be made will include observations of species encountered, water quality, general extent of wetlands, and any occurrences of erosion, and weed invasion.

Relevant Questions:

- Qualifications?
- What type of evaluation is needed?
- Scale of mapping?
- Are any materials needed to complete this work?
- Does this likely relate to any other actions in the Management Plan?
- **What is the purpose of the data being collected?**

Quantitative Monitoring Example

Species	Long-Term Species Monitoring		Other Monitoring Required
	Method	Frequency	
Giant Garter Snake	Aquatic Trapping	Every 5 Years	Water control system, vegetation, invasives, sediment, water quality, etc.
CA Tiger Salamander	Dip Net or Beach Seine (3 Surveys in Each Survey Year)	Every 3 Years	Vegetation, pathogens, etc.
Gopher Tortoise	100% Survey	Every 10 Years	Invasive plants (annual), red imported fire ants (after burns), fire fuel, etc.

Monitoring & Reporting



A photograph of two people, a man and a woman, standing in a field. The man is wearing a light blue long-sleeved shirt and a light-colored cap, and is pointing towards the right. The woman is wearing a dark t-shirt, blue jeans, and a light-colored cap, and is holding a red flag on a pole. The field is filled with tall grass and many orange markers. In the background, there are trees and a white fence. The sky is clear and blue. A semi-transparent grey box with the text "Agency Notification" is overlaid on the center of the image.

Agency Notification

Adaptive Management

Management through trial,
error, learning and
adjustment

Adaptive Management

**Assess
Problem**

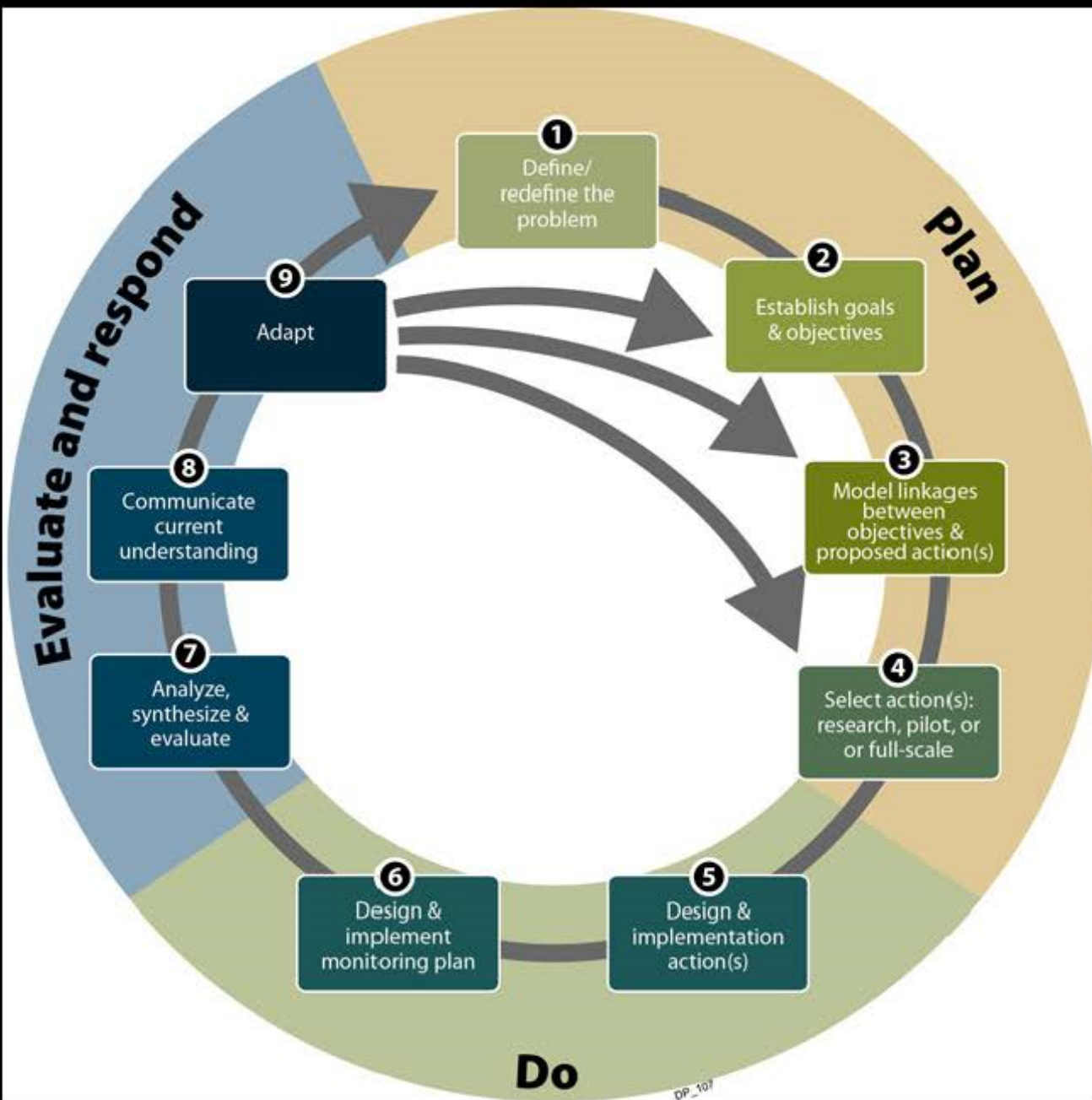
Adjust

Design

Evaluate

Implement

Monitor



Adaptive Management

“The overall goal of adaptive management is **not to maintain an optimal state of the resource, but to develop an optimal management capacity**. This is accomplished by maintaining ecological resilience (in the specific sense proposed by Holling 1973 and described further in Holling and Meffe 1996) that allows the system to react to inevitable stresses, and by **generating flexibility in institutions and stakeholders that allows managers to react when conditions change** (Gunderson 1999). The result is that, rather than managing for a single, optimal state, **we manage within a range of acceptable outcomes** while avoiding catastrophes and irreversible negative effects. “

Johnson, B. L. 1999. The role of adaptive management as an operational approach for resource management agencies. Conservation Ecology 3(2): 8. [online] URL: <http://www.consecol.org/vol3/iss2/art8/>



Source: CSIRO – Australia's national science agency

Adaptive Management: Vandalism

Eddy Electric Service

P O Box 108
Courtland, CA 95915

COPY

Invoice

DATE	INVOICE #
12/2/2010	6529

BILL TO
Westervelt Ecological Services 600 North Market Blvd., Suite 3 Sacramento, CA 95834

P.O. NO.	TERMS
Ditch Pump	Net 30

DESCRIPTION	RATE	AMOUNT
12/01 -12/02 Labor - Run new conduit & wire	485.00	485.00
3x70' Wire #1	185.00	185.00T
70' # PVC sch 40 conduit	140.00	140.00T
70' #8 wire	68.00	68.00T
210' #12 wire	90.30	90.30T
10' super strut	45.99	45.99T
1 - slice box 8x8x6 RT	31.32	31.32T
PVC, PVC radius. PVC male adapters, clamps	27.54	27.54T
Sales Tax <i>Vandalism repair</i>	8.75%	51.29
<i>consumes - material</i>		
Thank You We Appreciate your Business		
Please Pay From This Invoice. A service charge of 1.5% per month (APR 18%) will be applied on-invoices 30 days past due.		Total \$1,122.44



Neighbor Relations



Artist: Jon J Muth in
"City Dog, Country
Frog" by Mo
Willems

Determining Management Costs, The PAR Software

PAR

Property Analysis Record

"Planning for Conservation in Perpetuity"



Center for Natural
Lands Management

Title: CNLM PAR Example
Alameda, California

PAR Code/ Internal Reference: N100

Prepared For: Example/Demonstration

Prepared By: CNLM Staff
Center for Natural Lands Management

Date: 12/21/2020

Contents: The PAR report potentially contains 11 sections, from (I) Property Information to (XI) Labor and Contract Summary. Some sections, if not relevant, may not be included in this report.

Attributions and Disclaimers: The Center for Natural Lands Management (CNLM) designed the first "PAR" (Property Analysis Record) software—a program that supports the calculation of perpetual stewardship costs of conservation lands. This PAR analysis was produced using a QuickBase application developed by Velisur, Inc. and was based on CNLM's PAR30. CNLM makes no representations about the accuracy of the cost estimates. The PAR analysis represented in this report was only prepared by CNLM if indicated specifically on this cover. External users of this application or recipients of this report, who may make related decisions or investments based on this information, should consult with their own internal sources and financial advisors concerning appropriate interpretation and financial assumptions.

Source: Center for Natural Lands Management (www.cnlm.org/PAR)

Stewardship (PAR) Cost Categories

1. Acquisition
2. Biological Surveys
3. Conservation Easement
4. Data Mgmt. & Reports
5. Habitat Maint. & Enhancement
6. Habitat Restoration & Enhancement
7. Office Maintenance
8. Operations
9. Permits
10. Public Services
11. Site Construction and Maint.
12. Vehicle & Field Equipment
13. Revenue
14. Agency Reports



Source: Center for Natural Lands Management (www.cnlm.org/PAR)

Tasking

Record ID#	PAR Name	Preserve Name	PAR Code	Location
393	CNLM PAR Example	CNLM Preserve	N100	

Auto-populate Perpetual Information

Choose	Category	Task	Specific Description	Position	Unit	Initial and Capital					Perpetual					Assumptions		
						No. Units	Cost/Unit	No. Years	Contin(%)	Subtotal	Admin(%)	No. Units	Cost/Unit	Freq(Yrs)	Contin(%)		Subtotal	Admin(%)
<input type="checkbox"/>	Acquisition	Survey	Survey/Staking		Item													
<input type="checkbox"/>	Biological Surveys		Fee		Dollars													
<input type="checkbox"/>	Conservation Easement																	
<input type="checkbox"/>	Data Management & Reports		Property Inspection		L. Hours													
<input type="checkbox"/>	Habitat Maintenance & Enhancement		Acquisition Cost		Acre													
<input type="checkbox"/>	Habitat Restoration & Enhancement		Prepare/Review Documents		C. Hours													
<input type="checkbox"/>	Office Maintenance		Negotiation of Purchase		L. Hours													
<input type="checkbox"/>	Operations		Search Ownerships/Maps		L. Hours													
<input type="checkbox"/>	Permits		Pay Realtor		Dollars													
<input type="checkbox"/>	Public Services		Record Documents		Page													
<input type="checkbox"/>	Site Construction & Maintenance		Standard CLTA		Dollars													
<input type="checkbox"/>	Vehicle & Field Equipment		Field Survey		L. Hours													
<input type="checkbox"/>	Water Management		Field Survey		L. Hours													
<input type="checkbox"/>	Acquisition	Recording Fees	Field Survey		L. Hours													
<input type="checkbox"/>	Acquisition	Title Insurance	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	Entomologist	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	Fisheries Biologist	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	General Wildlife Surveys	General Surveys		L. Hours													
<input type="checkbox"/>	Biological Surveys	Herpetologist	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	Hydrologist	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	Landscape Ecologist	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	Mammalogist	Field Survey		L. Hours													
<input type="checkbox"/>	Biological Surveys	Monitor Climate	Field Data Collection		L. Hours													
<input type="checkbox"/>	Biological Surveys	Monitor Groundwater	Field Data Collection		L. Hours													

Source: Sherry Teresa, Eco-Logical Solutions Consulting





TNC Stewardship Calculator

LONG-TERM
STEWARDSHIP CALCULATOR:
ACCOMPANYING HANDBOOK



Determining Management Costs, Part 2, the Manual Method

Plan Goals & Objectives

Management Tasks - Scope

Cost Estimate

Management Plan Action	Hourly Rates								Fixed Costs	Total	Occurrence Cycle	Secured Establishment	Stewardship Account Endowment
	Land Mgr (\$125)	Sr. Tech (\$90)	Jr. Tech (\$75)	Field Crew (\$35)	Ad staff (\$50)	Cost	Cost	Cost					
Section 3.0 - Recreation, Education, and Habitat Restoration													
Bank Manager Coordination	8	1,000									1	\$	\$ 22,222
Section 5.1 - Adaptive Management													
Staff Coordination	4	500	4	360							1	\$	\$ 19,111
Section 5.3.2 - Hatch management													
Grazing Coordination	8	1,000		24	1,800						1	\$	\$ 62,222
Update grazing plan	4	500		6	450						10	\$	\$ 1,718
Prepare burn plan	2	250	4	360	18	1,200					10	\$	\$ 3,273
Local agency coordination	2	250	8	720	24	1,800					10	\$	\$ 5,009
Burn permit								480	1.0	\$	10	\$	\$ 868
Implement burn plan								35,000	1.0	\$	10	\$	\$ 9,042
Section 5.3.3 - Non-native Plant Species Management													
Shrub trimmer/weed eater								350	1.0	\$	5	\$	\$ 1,422
Mowing								850	40.0	\$	5	\$	\$ 9,749
Herbicide								850	2.0	\$	5	\$	\$ 406
Herbicide application					16	560					5	\$	\$ 2,275
Section 5.3.7 - Landowner Liason													
Bank Manager Coordination	8	1,000									1	\$	\$ 22,222
Section 5.3.8 - Trash Removal													
Trash collection					24	840					1	\$	\$ 18,667
Section 6.1 - Fencing, Signage, and Gates													
Fence installation (\$375/foot)								3,750	12,000	\$	45,000	Upfront	\$ 45,000
Fence materials for maintenance								3,750	600	\$	2	\$	\$ 24,450
Signage								65	44.0	\$	5	\$	\$ 894
Gates								1,200	1.0	\$	20	\$	\$ 850
Signage, and gate maintenance					32	1,120					1	\$	\$ 24,889
Fire Breaks													
Initial								350	1.0	\$	1	\$	\$ 1,718
Maint											1	\$	\$ -
General Inspections													
Inspection	10	1,250									1	\$	\$ 21,778
Biological Inspections													
Bot floristic surveys			8	720	24	1,800					5	\$	\$ 10,236
Bot invertebrate surveys					32	2,400					5	\$	\$ 9,749
Wade for hydrologic monitoring								1,200	1.0	\$	5	\$	\$ 4,874
Accumulation monitoring/ non-native species assessment			4	360	12	900					1	\$	\$ 28,000
Wade habitat assessment					16	1,200					1	\$	\$ 26,667
Biological monitoring plan	3	375	12	1,080							5	\$	\$ 6,376
Agency Coordination/Inspection													
Agency Coordination	4	500									1	\$	\$ 11,111
Annual Reporting													
Report preparation	2	250	4	360	24	1,800					1	\$	\$ 58,000
Materials								650	1.0	\$	1	\$	\$ 1,111
Section 10.0 - Bank Ownership													
Property taxes									1.0	\$	1	\$	\$ -
Insurance									1.0	\$	1	\$	\$ -
Mileage								80.50	1080	\$	1	\$	\$ 12,000
Stewardship subtotal												\$45,000	\$432,910
Contingency													\$43,291
Administrative												\$64,936	
Interest Rate													
Endowment Subtotals												\$109,936	\$476,201
Grand Total													\$586,137



Cost Estimation



Dutchman Creek Conservation Bank Fencing Objective:

Element C.1

“Monitor and maintain fencing and gates to prevent casual trespass, allow necessary access, and, if necessary, facilitate grazing regime and management.”

Dutchman Creek Conservation Bank Fencing Tasks:

Objective

"Monitor and maintain fencing and gates to prevent casual trespass, allow necessary access, and, if necessary, facilitate grazing regime and management."

Task C.1.a Record condition each visit...

Task C.1.b Replace gates...

Task C.1.c Replace fence...

Task C.1.d Fence and gate repairs and associated sign replacement will be performed on 264 linear feet of fence each year...

Task C.1.d. Assumptions

Hours allocated for 16 hours of fence repair and/or maintenance by field crew staff (i.e. 2 persons at 8 hrs. each, including travel) each year. Fixed materials costs have been added to include 1 roll of barbed wire which will provide 264 lf of 5 strand fencing plus 11 T-posts and clips and a no trespassing sign. An additional hour has been allocated for Sr. Tech time to review fence establishment area while in-office to minimize effects to special status species, based on data collected in Task C.1.a.

Building a War Chest for Conservation

“Endowment”



or

“Long-Term
Stewardship Fund”





Stewardship Fund – Financial Mechanics

- Capitalization /Spend Rate
- Inflation
- Funding Prioritization



Sizing the Initial Amount of the LTSF: The Role of the Cap Rate a/k/a Spend Rate

- After the long-term stewardship plan has been developed and costed, the next step is converting the annual cash stream need into the up-front funding amount
- This is accomplished through the application of what is known as the capitalization rate, or “Cap Rate”
- The Cap Rate is the percentage of the LTSF necessary to be drawn each year for stewardship work costs, and thus is also sometimes referred to as the “Spend Rate”
- To solve for the LTSF initial amount, the formula is:
 - $\text{Annual Cash Need} \div \text{Cap Rate (Spend Rate)} = \text{Initial Amount}$
 - $\text{Example: } \$20,000 \div 0.03 = \$666,667$

Slide courtesy of:



Sizing the Initial Amount of the LTSF: Selecting a Cap Rate

- The Cap Rate reflects the **net amount of gain (%)** that the portfolio must realize each year on average to meet the cash requirement for stewardship work costs
- “Net” in this sense is not only net of fees (investment manager and other administrative), but also net of inflation
- Assuming administrative fees at 1% and inflation at 3% annually, the fund must be projected to return on average 4% annually before there’s anything left to spend on stewardship work costs!

Slide courtesy of:  NFWF

Sizing the Initial Amount of the LTSF: Effect of Different Cap Rates

The lower the Cap Rate, the higher the initial amount of the fund:

Annual Cash Need	Cap Rate	Initial Fund Amount
\$20,000	5%	\$400,000
\$20,000	3%	\$666,667
\$20,000	1%	\$2,000,000
\$20,000	0.5%	\$4,000,000

Slide courtesy of:





Task and Funding Prioritization

Example Task Prioritization Statement:

Due to unforeseen circumstances, prioritization of tasks, including tasks resulting from new requirements, may be necessary if insufficient funding is available to accomplish all tasks. The Bank Manager, the Conservation Easement Grantee, and the IRT shall discuss task priorities and funding availability to determine which tasks will be implemented. In general, tasks are prioritized in this order:

- Tasks required by a local, state, or federal agency
- Tasks necessary to maintain or remediate habitat quality
- Tasks that involved the monitoring of resources, particularly if past monitoring has not shown downward trends

Final determination of task priorities in any given year of insufficient funding will be determined in consultation with the IRT and as authorized by the IRT in writing, with notification to the Conservation Easement Grantee.

Land Management Planning Checklist

- Scope, schedule, & budget!**
- Scope:**
 - Management Tasks from Goals & Objectives**
 - Maintenance Tasks**
 - Monitoring and reporting**
 - Adaptive Management**
 - Administration**
- Schedule:**
 - Frequency**
 - Season**
- Budget:**
 - Hours , materials, and methods**
 - Assumptions**

Questions?

Matt Gause

mgause@westervelt.com

Westervelt Ecological Services

