“Ecological Assets Are Redefining Rural Land Value”

2019 Landowner Deck

Eco-Asset Solutions & Innovations LLC

San Francisco and South Lake Tahoe

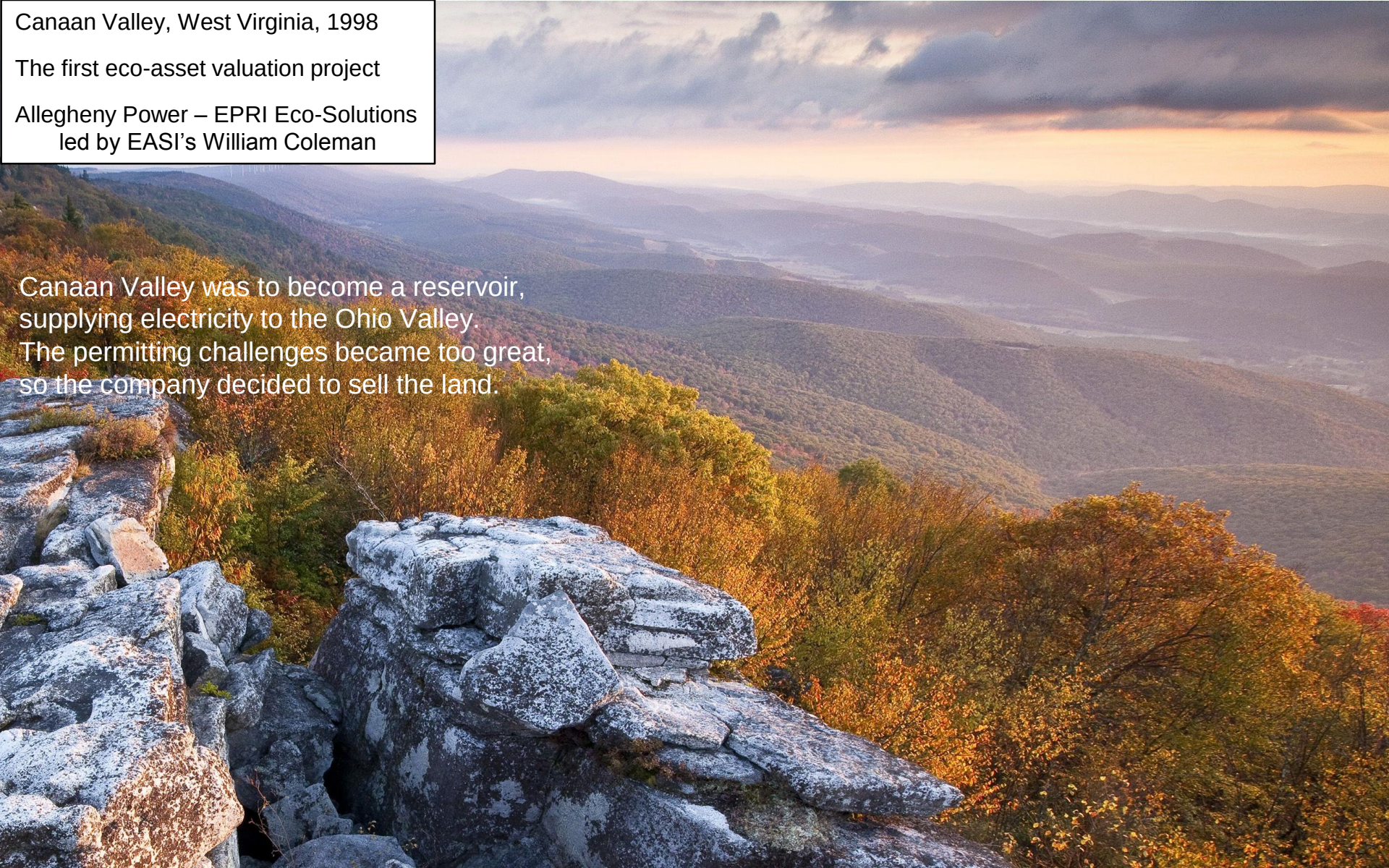
01-415-706-6154

info@easillc.com

Canaan Valley, West Virginia, 1998

The first eco-asset valuation project

Allegheny Power – EPRI Eco-Solutions
led by EASI's William Coleman



Canaan Valley was to become a reservoir,
supplying electricity to the Ohio Valley.
The permitting challenges became too great,
so the company decided to sell the land.

Allegheny Power Company - 1998 → Sell the land! (At what price?)

Canaan Valley

20,000 acres acquired in 1900s

CV Pump Storage Power Plant

Sell 8000 acres for vacation homes & recreation

Conduct an eco-asset review and appraisal of the wildest parts, about 12,000 acres

$33M appraised eco-asset value!

- Wetland credits
- Stream credits
- Species credits
- Carbon credits

Price Waterhouse affirmed our method; IRS gave a supporting Opinion Letter

Conservation Fund, managing the Land & Water Conservation Fund for USFWS, offered $16M using Yellow Book methods

Really?

$32M bulk/gross eco-asset value
- $16M sale paid out of L&WCF
$17M 'gift' to federal govt.

$5M tax deduction! (30% bracket)

$21M project value to Allegheny Power
$11M on remaining land sale
$32M total value
+ industry awards and repeat PR value

Canaan Valley National Wildlife Refuge

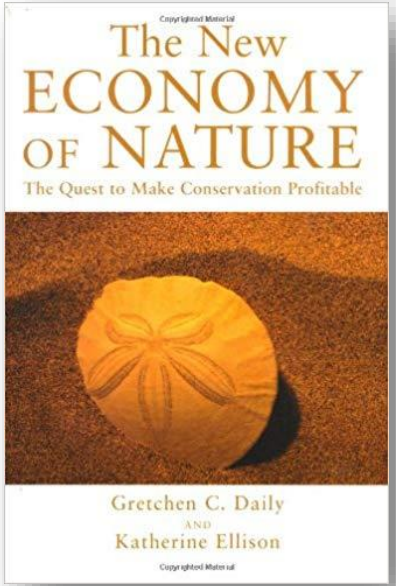
Etela Ivkovic

MAY 2018

The biggest reward may have been creation of the Canaan Valley National Wildlife Refuge.

The Washington Post
Democracy Dies in Darkness

Land and Eco-Assets for Sale



By **Katherine Ellison**
January 25, 2002

The Canaan Valley in Tucker County, West Virginia, long has been a kind of promised land for conservationists.

The scenic Appalachian Mountain basin features extraordinary biological diversity, including one of the largest wetlands east of the Mississippi. It offers habitat for the threatened Cheat Mountain salamander and potential habitat for the endangered West Virginia northern flying squirrel and the Indiana bat.

But it wasn't until a dollar value could be established for such natural assets -- including the contribution of regenerated forests toward regulating the global climate -- that the property's owners prepared to turn it over for preservation.

In what may be an unprecedented effort to showcase a new approach to conservation, Allegheny Energy Inc. plans to sell roughly 12,000 acres of Canaan Valley land to the U.S. Fish and Wildlife Service, possibly as soon as next week. What makes the plan remarkable is how the power company calculated the property's value for tax purposes. By including the worth of the land's ecosystems, it came up with a figure that more than doubled traditional estimates.

https://www.washingtonpost.com/archive/politics/2002/01/25/land-and-eco-assets-for-sale/590e94a5-a1fa-4d1b-82bc-74d29134ad6e/?noredirect=on&utm_term=.8b7219f4fbd1

More than 40 projects have been completed since Cannan Valley.

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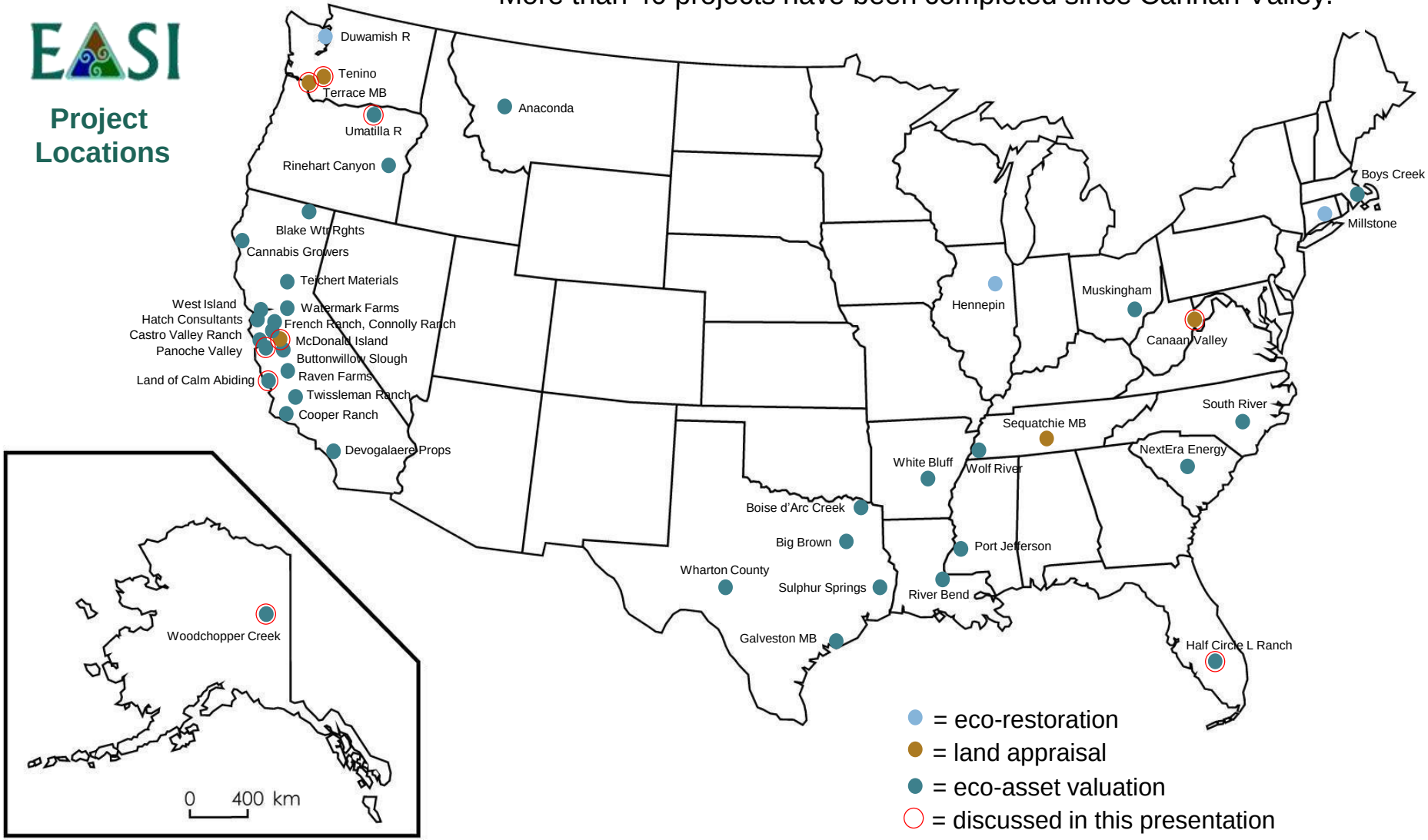
Project Locations



About Ecological Assets

The economic benefits of ecosystem services went unappreciated and therefore unquantified for far too long.

That changed in the 1990s. Economists revealed that ecosystem services are worth twice as much as global GDP.

They showed that eco-services support all economic productivity and all quality of life.

Different habitats support different combinations of plant and animal species contributing to local economies and quality of life.

This makes sense if you think about it. Eco-services are like the bricks and mortar, the wiring, operating programs and conveyor belts of the natural world. They create 'natural *capital*' in the ecological economy.

Example: Wetland habitats (natural capital) buffer floodwaters, filter toxins from rainwater and store water in aquifers. Wetlands provide housing for wildlife and plants. That biodiversity stabilizes the habitat.

Economists realized the replacement value of these eco-services is huge. Preserving and restoring eco-services becomes a high priority.

Ecosystem Services

- atmospheric gas regulation
- climate regulation
- disturbance regulation
- water regulation
- water supply
- soil formation
- soil maintenance
- biodiversity maintenance
- nutrient cycling
- waste treatment
- pollination
- pest control
- food production
- raw materials
- genetic library
- cultural components

The diversity of habitats and species is important to economic productivity in every region worldwide.

Eco-Services, Mitigation Banks, Land Value

- Eco-services needed to have consistent, measurable economic value. Landowners needed a way to monetize these services. They needed *market-based* incentives to get things going.
- Policy-makers created voluntary compensatory mitigation programs to accomplish these goals.
- These programs require developers to *compensate* for impacts to local ecological features by *offsetting* or *mitigating* these impacts. This gives developers cost-effective compliance options.
- The programs permit landowners to develop wetland or conservation banks that can earn mitigation credits. Credit prices are set by the landowner, applying basic market principles of supply, demand, cost recovery, profits, and willingness-to-pay.
- Developers can buy mitigation credits to offset their project's environmental impacts. This is usually less expensive than other options they have.
- The policies originated during the Ronald Reagan and George W. Bush years. A $400 billion economy has developed as a result.
- Congress would have to rewrite the Clean Water Act Endangered Species Act to undo these policies.

Other habitats like woodlands, grasslands and desert lands provide valuable eco-services, including fertile soil, pollination, pest control and production of raw materials like timber and pasture.

Ecosystem Services

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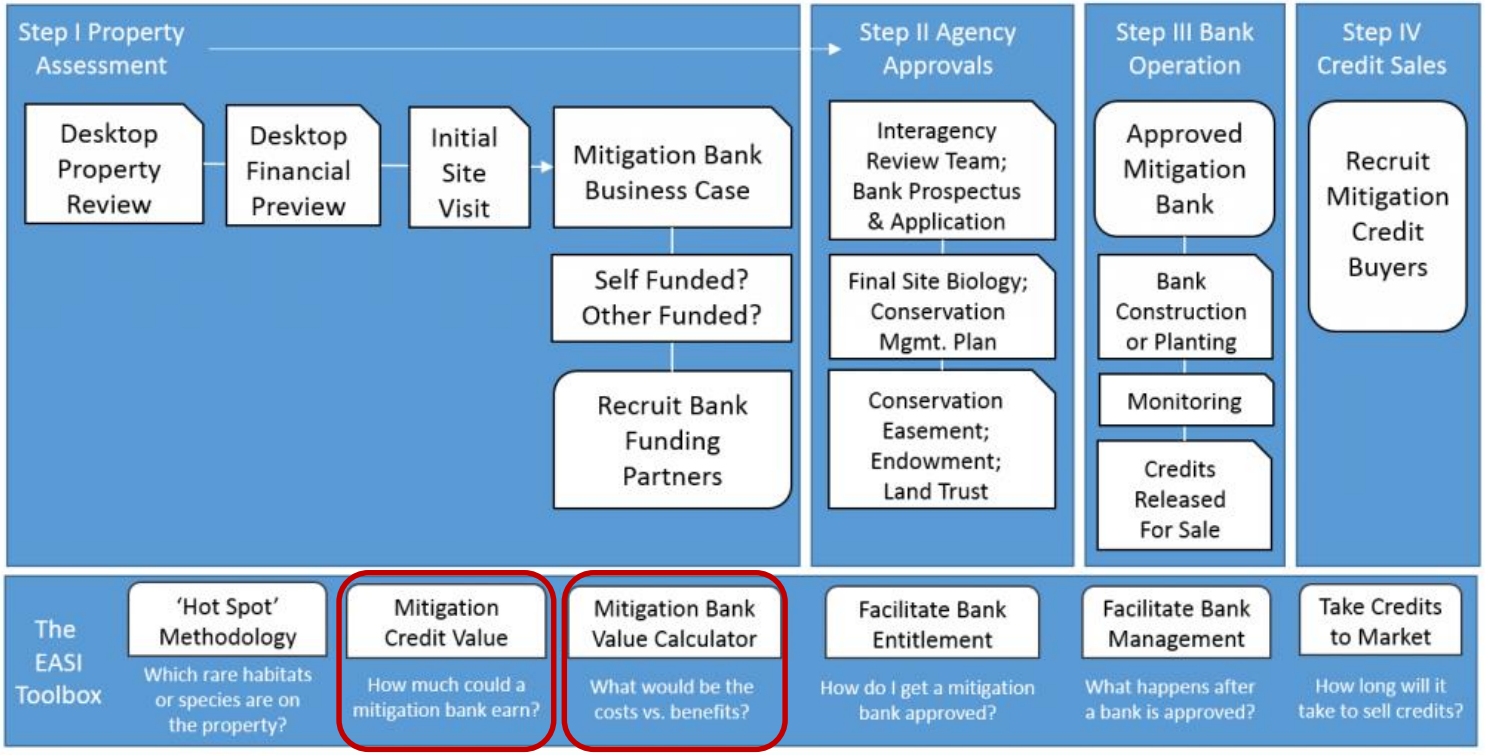
- genetic library

Experienced policy makers understand the economic and social importance of preserving and restoring these landscapes.

Native biodiversity is well adapted to local climatic and topographic conditions. This helps optimize overall ecological and economic productivity.

Four Steps for Landowners – Building a Successful Mitigation or Conservation Bank



Potential mitigation banking revenue can influence highest-and-best-use determinations during appraisals

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Example Mitigation Credit Buyers

- Commercial & residential developers
- Energy companies
- Water companies
- Railway companies
- Highway departments
- City & County agencies
- Federal government

US Army Corps of Engineers
(Clean Water Act)

Wetland & Stream Mitigation Credits

US Fish & Wildlife Service
(Endangered Species Act)

Species & Habitat Conservation Credits
(also called mitigation credits)

US Environmental Protection Agency
(Clean Water Act)

Water Quality Credits
(in some areas)

info@easillc.com

About Mitigation Credits

A mitigation credit is a **unit of trade** used to offset loss of ecosystem quality, usually from construction, development or operation of built infrastructure. A mitigation credit has carefully controlled utility and liquidity.

A mitigation credit is **a standard unit of measure** representing the protection or increase (called 'lift') in ecosystem quality that results from preservation, enhancement, restoration or creation (PERC) of important ecological features such as wetlands or other rare habitat types.

Mitigation credits are **awarded to landowners** in exchange for a) dedicating land via a conservation easement to the public domain in-perpetuity, b) investing in the measured PERC of land to purposefully compensate for lost ecological quality, and c) implementing a wildlife and habitat management plan (WHMP) to ensure that ecological resources are protected long term.

A mitigation bank is the usual result of these efforts. Agencies approve each step of the process leading to mitigation bank operation.

Once earned, mitigation credits can be sold to buyers as proof of the buyers' effort to compensate (mitigate) for development impacts. The price of a mitigation credit is set by basic market principles of supply, demand, development cost, desired profits and willingness-to-pay.

Buyers are those who have to secure certain kinds of environmental permits from federal agencies. They are 'permittees'. They can include commercial & residential developers, city & county governments, industry and others entities who impact ecological quality.

Mitigation credits are **intangible assets** in that they lack physical substance; they are anchored to the land just like a mineral certificate is, but they are not subject to depreciation like structures, vehicles, equipment or inventory (tangible assets).

Mitigation credits are a) **authorized** by state/federal agencies; a ledger account is then established. Credits are b) **released** for sale as the mitigation bank achieves agency-approved performance standards. Credits can then be c) '**withdrawn**' (sold) from the ledger as buyers need to compensate for ecological impacts. Once money changes hands the mitigation credit has become a **liquid asset**.

Demand for mitigation credits depends on rates of economic growth driven by planned development projects. It can take years, even decades, for a mitigation bank to sell all of its authorized mitigation credits.

Mitigation credit broker/sellers may sell credits to permittees from an approved mitigation bank. **Broker/sellers** may manage the marketing of mitigation credits, draft sales agreements, coordinate and track credit transfers. But a credit may only be sold once to offset an impact. Credits may not be purchased for resale. All sales are reported to the agencies to ensure that credits are accounted for from authorization to withdrawal.

Once a credit is withdrawn from a ledger (sold), it is permanently retired. The credit-acre (the land to which the credit is anchored) is then managed for conservation purposes by a third-party entity -- a land trust, an environmental group, or an agency itself.

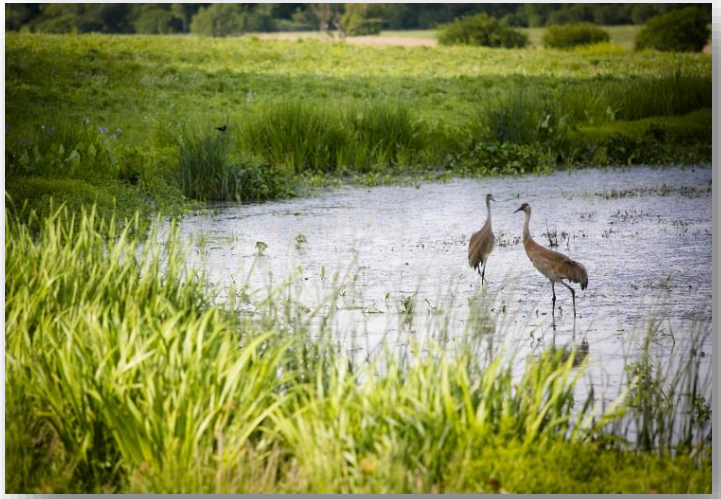
- Monetizing eco-services creates built-in business value for land conservation. (Long term protection for eco-services is assured through *conservation easements* required for every mitigation bank.)

- This blends free market principles with public interest policy-making.

- Developing mitigation credits leads to bookable assets that are subject to familiar methods of land pricing, purchasing, accounting and tax valuation.

- Ecological assets can significantly boost the market value of land.

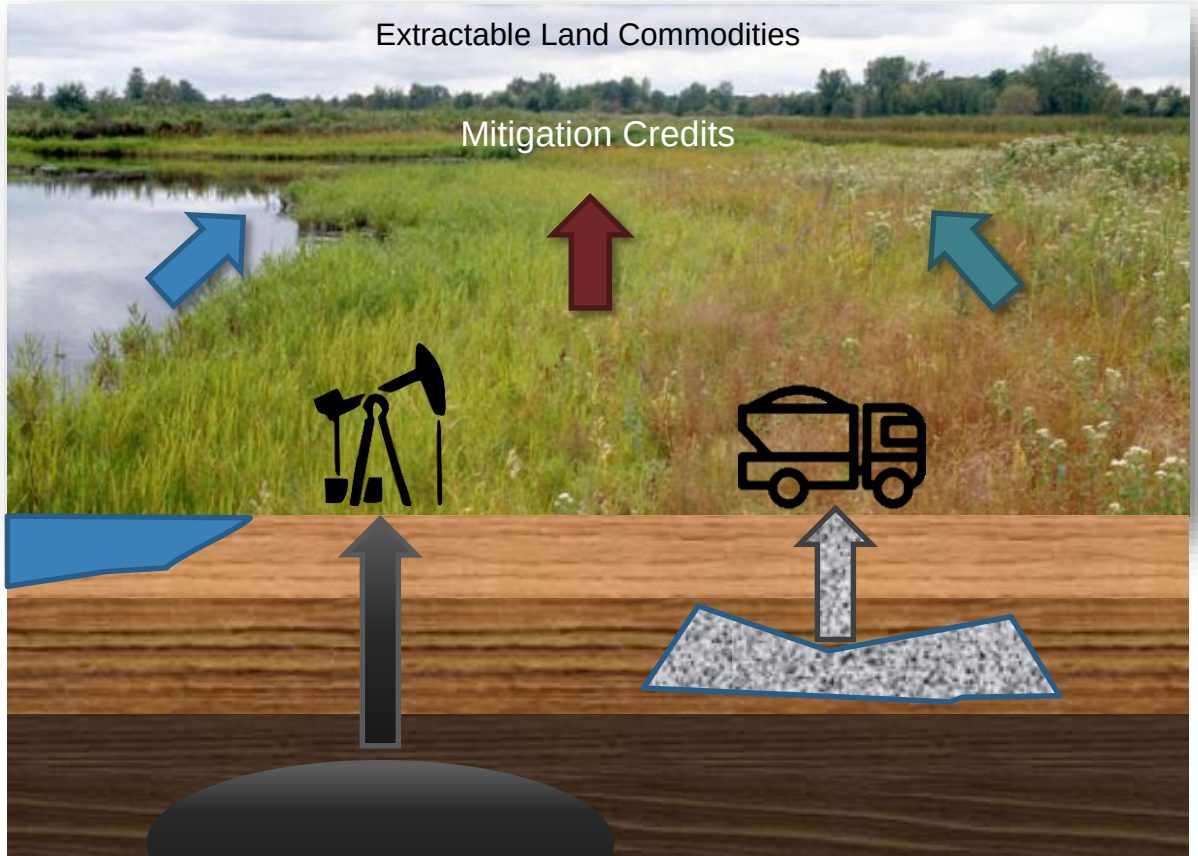
- Appraisal methods should now *uniformly* incorporate eco-asset data and methods.



Ecological Assets are like other kinds of extractable natural resources fixed to the land.

They are like minerals, or oil & gas. They are eco-asset *stocks* that can be 'extracted' to *flow* into the economy.

They are taken to market as credit-acres, 'used' to offset development impacts (becoming bookable assets… ecological assets) while the acre of land is retired for low impact compatible uses – grazing, recreation, etc.



Bringing land valuation into the 21st century

What was needed was a set of value-based data, plus methods and tools that could:

1. Identify high-value lands carrying potential ecological assets

2. Estimate gross eco-asset value based on:

   a) the land's ability to generate mitigation credits and

   b) the market value of these credits

3. Estimate eco-asset revenue potential measured as mitigation bank NPV and ROI

4. Determine a property's updated appraised value* (or estate value) following Appraisal Institute guidelines

*EASI valuations are conducted in partnership with experienced, certified appraisers. Appraised value stems from highest-and-best-use determinations that are built up from an eco-asset valuation.

EASI

Here's how to do it!

Land ecological characteristics

"Creditable" features

X, Y, Z

Land & water ecological asset value

Mitigation credit prices

$70,000
$15,000
$200,000

$$, $, $$$

[(X*$$)*acs]+[(Y*$)*acs]+[(Z*$$$)*acs] = gross EAV

+ other revenue potential $ = total land revenues

(cattle, timber, minerals, res/com development…)

Development costs (mitigation bank)

- land acquisition
  mineral rights?
- conservation easement
- endowment fund & project sponsor
- wildlife & habitat management plan
  restoration, monitoring & reporting…

Market demand (mitigation credit "adsorption rate")

- competition; mit-credit type & quantity
- rate of mit-credit sale
- potential buyers

Credit sale timeline; discount rate, NPV/ROI/ROR

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The Mitigation Credit Price Report – an unrivaled source of eco-asset market data

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37 states
1990 – present
1100+ data points
wetland, stream, species, habitat, water quality
mit-credit values

Project Case Studies

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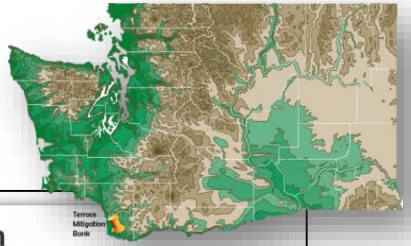
Case Study 1: A 130-acre property in **Vancouver, Washington** was approved for wetland mitigation banking in 2015.



EASI predicted Terrace MB could generate about $12.6M in gross eco-asset value, or $97,000/acre, based on a wetland credit price of $156,000 each.

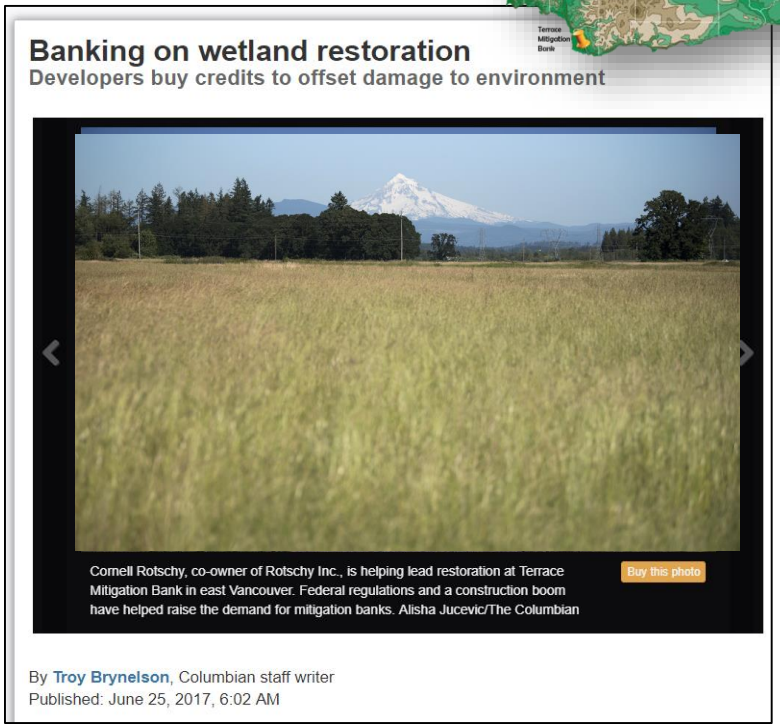
Colliers International was asked to appraise the property. They assigned a 15 year project period and a 17.5% discount rate to the EASI gross estimates, predicting net earnings = $4.9M.

Prices today are about $190,000 per credit-acre.

The bank has 81 approved credits.

At today's value, that would be $15.2 million gross or $5.9M net.

As of January, 2019, 12.171 wetland credits have been sold, valued at $2.25M.



Banking on wetland restoration

Developers buy credits to offset damage to environment

Cornell Rotschy, co-owner of Rotschy Inc., is helping lead restoration at Terrace Mitigation Bank in east Vancouver. Federal regulations and a construction boom have helped raise the demand for mitigation banks. Alisha Jucevic/The Columbian

Buy this photo

By Troy Brynelson, Columbian staff writer
Published: June 25, 2017, 6:02 AM

"A 113-acre former peat bog in Vancouver, WA, became Terrace Mitigation Bank in 2017.

It will be restored over the next decade and conserved for the foreseeable future. The bank will generate millions in revenues by restoring it and selling credits to local developers, whose projects may cause ecological damage."

Terrace MB LLC approached Riverview Community Bank, a federally regulated lender, for a loan to finance site restoration.

They offered <u>future mitigation credits as collateral</u> for the loan.

The lender was unfamiliar with the market value of mitigation credits. They funded the Colliers appraisal to understand the relationship between land value and mitigation credit values.

Colliers set up a clear framework for the assessment:

Value Conclusion As-Developed	
Terrace Mitigation Value (Intangible Credits):	$4,900,000
Terrace Mitigation Bank Fee Land Value:	$115,000
White Oak Bank Fee Land Value:	$495,000
Indicated Value:	$5,510,000

<u>Regulatory Authority</u>

"The Subject Property has been designated as a mitigation bank by the Washington Department of Ecology (Ecology). As such, the Subject Property can sell credits to offset mitigation on other lands.

<u>Mitigation Credit Market Demand</u>

"The primary users of credits are likely to be the City of Vancouver, Clark Regional Wastewater District, Pacific Energy, Port of Vancouver, Portland General Electric Company, Washington State Department of Transportation and a number of public, quasi-public and private users."

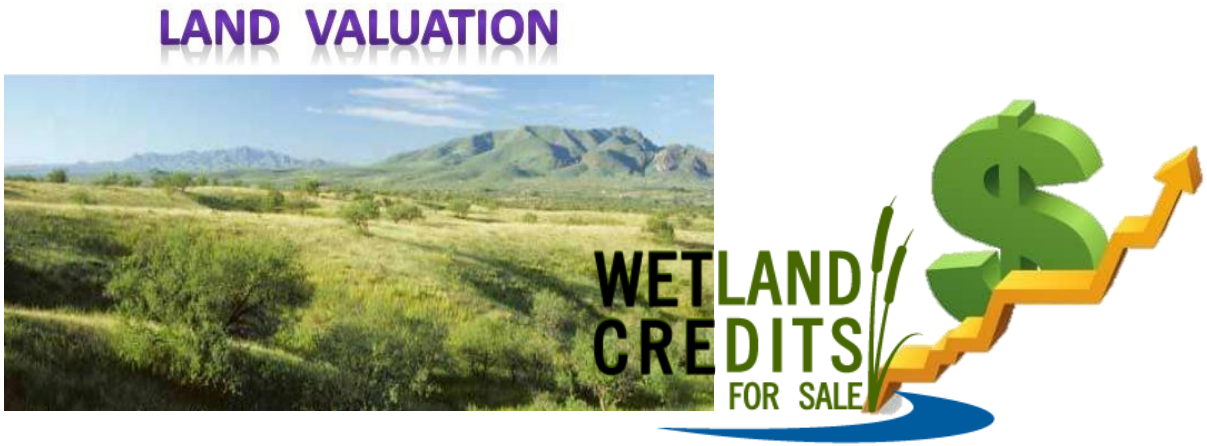
<u>Mitigation Credit Market Price</u>

"The starting point for the analysis is the value of a credit. We looked to the public records for sales of similarly developed credits (e.g. 'comparables'). (According to EASI) the adjusted average value is about $156,000 per credit statewide. For reference are the available sales for (nearby) East Fork and Columbia River mitigation banks.

"The final estimate of market value for the Subject Property is based on the summation of the fee interest in the Property plus the present value of the agency-authorized mitigation credits for the Terrace MB."

Case Study Lessons

Lesson 1 – Mitigation credits can be bona fide indicators of land value and important sources of business revenue.



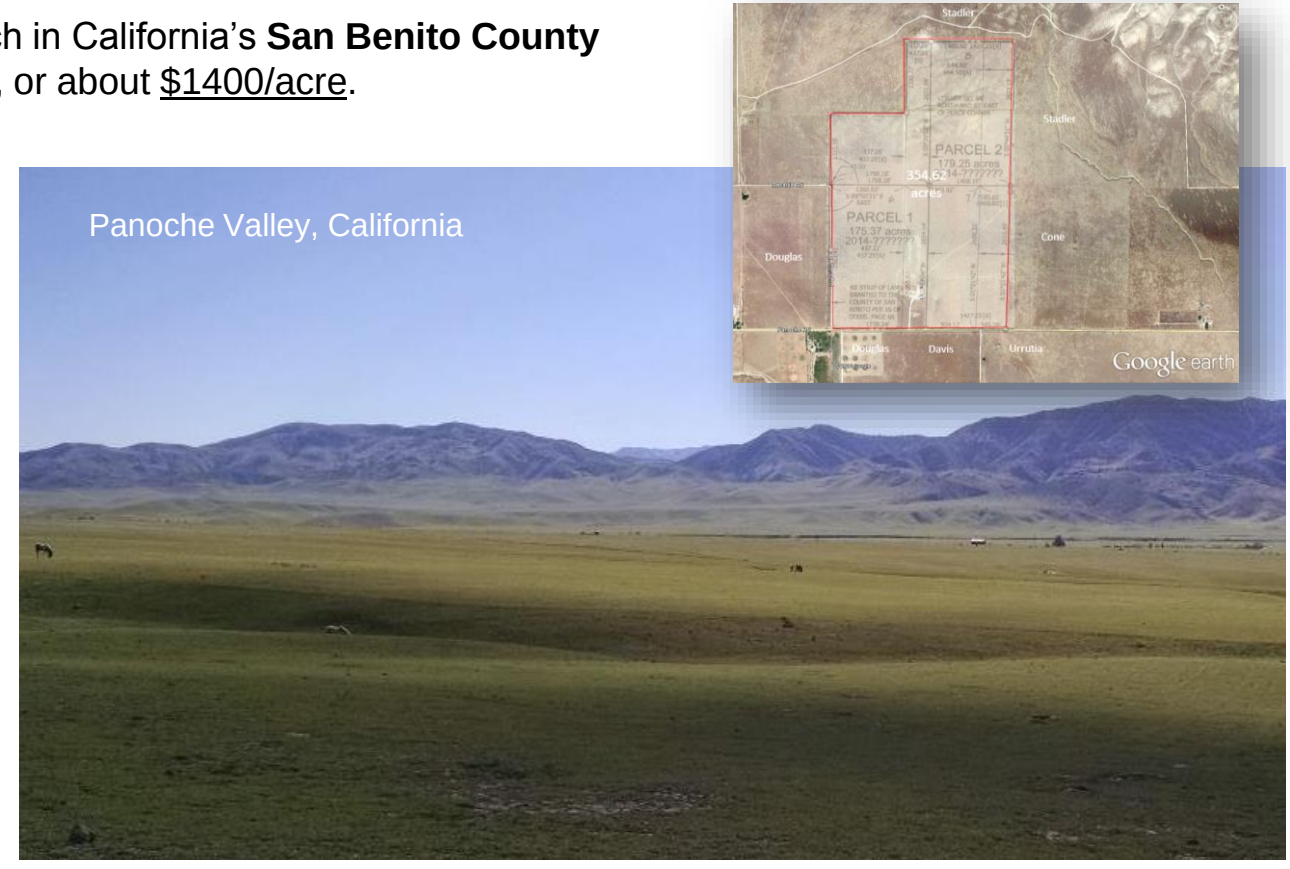
Lesson 2 – Mitigation credits, although intangible assets, have known market value. That value can be recognized for purposes of debt financing.

Case Study 2: A 355 acre horse ranch in California's **San Benito County** was purchased in 2014 for $500,000, or about $1400/acre.

EASI performed an eco-asset review, finding 5 ('creditable') species for which mitigation credit market value had been established.

EASI estimated the gross value of future mitigation credits to be $9M.

The landowner had no experience with mitigation banking. Instead, he sold 300 acres to a local energy company that needed mitigation land to offset proposed solar energy development impacts.



The energy company paid $4400/acre ($1.3M) for the mitigation land, three times comparable market value.

Why pay that premium?

The 300 mitigation credits would have cost the energy company 5x as much ($6.5M) if purchased from a mitigation bank. The company saved ~ $5M by accepting the landowner's offer.

Case Study Lessons

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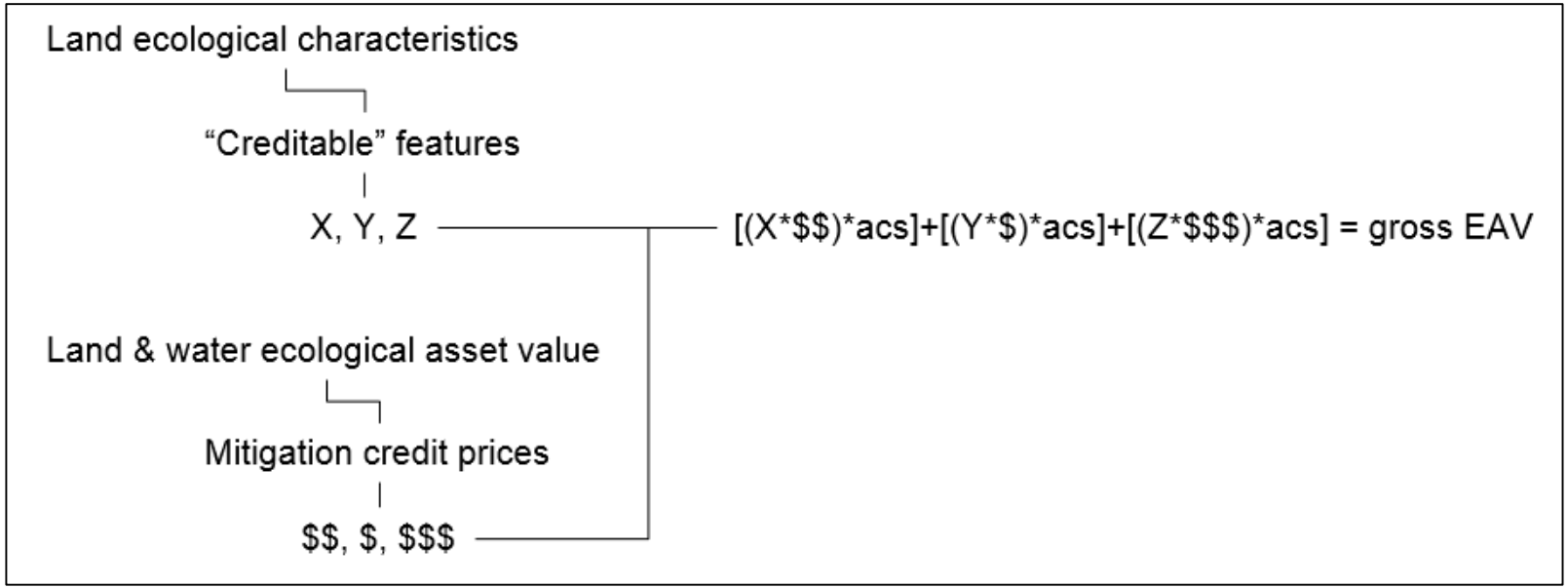
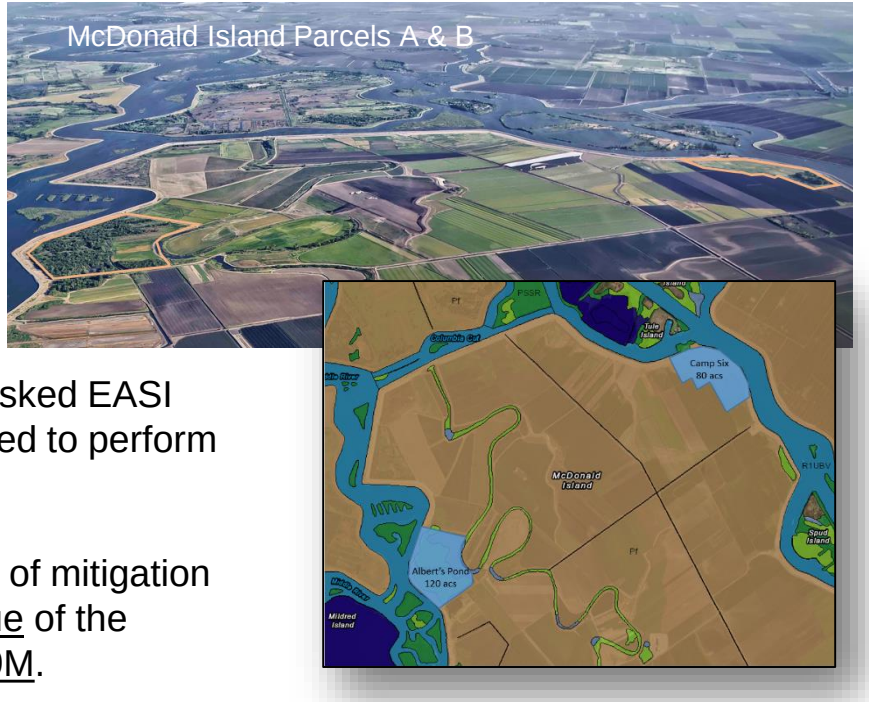
Lesson 2 – Mitigation credits, although intangible assets, have known market value. That value can be recognized for purposes of debt financing.

Lesson 3 – Developing a mitigation bank can be costly, and isn't always necessary. Just knowing the *potential* mitigation credit (eco-asset) value can boost land sale prices.



Case Study 3: In 2016, a California Reclamation District needed to mitigate for levee maintenance impacts at **McDonald Island** in the San Joaquin River.



The Rec District asked a local landowner to sell or donate 200 acres of potential mitigation land to help meet this obligation.

The landowner, unsure how to value the mitigation acres, asked EASI to conduct an eco-valuation. Colliers International was asked to perform a land appraisal once the eco-valuation was complete.

The appraisal showed a 24:1 ratio between the gross value of mitigation credits and the market value of the 200 acres. The gift value of the property (subject to tax deduction) went from $200K to $4.9M.

(From the Colliers' report)

Final Value Conclusion:

Subject Property Value Conclusion			
	Parcel A	Parcel B	Total
Market Value of Fee Land (Real Estate):	$120,000	$80,000	$200,000
Bulk Value of Mitigation Credits (Intangible Value):	$4,250,000	$425,000	$4,675,000
Total Market Value:	$4,370,000	$505,000	$4,875,000

Case Study Lessons

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Lesson 4 – The gift value of land, and the related tax offset, can increase by taking eco-asset values into consideration. This is also true when figuring estate value.

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Total Market Value:	$4,370,000	$505,000	$4,875,000

$32M gross eco-asset value
- $16M price paid by CF / L&WCF
$16 gift to federal govt.

$4.8M tax deduction (30% bracket)

$20.8M project value to Allegheny Power

Case Study 4: A 485-acre meditation retreat center in **Monterey County**, CA wanted to find more conservation oriented economic uses for the land.

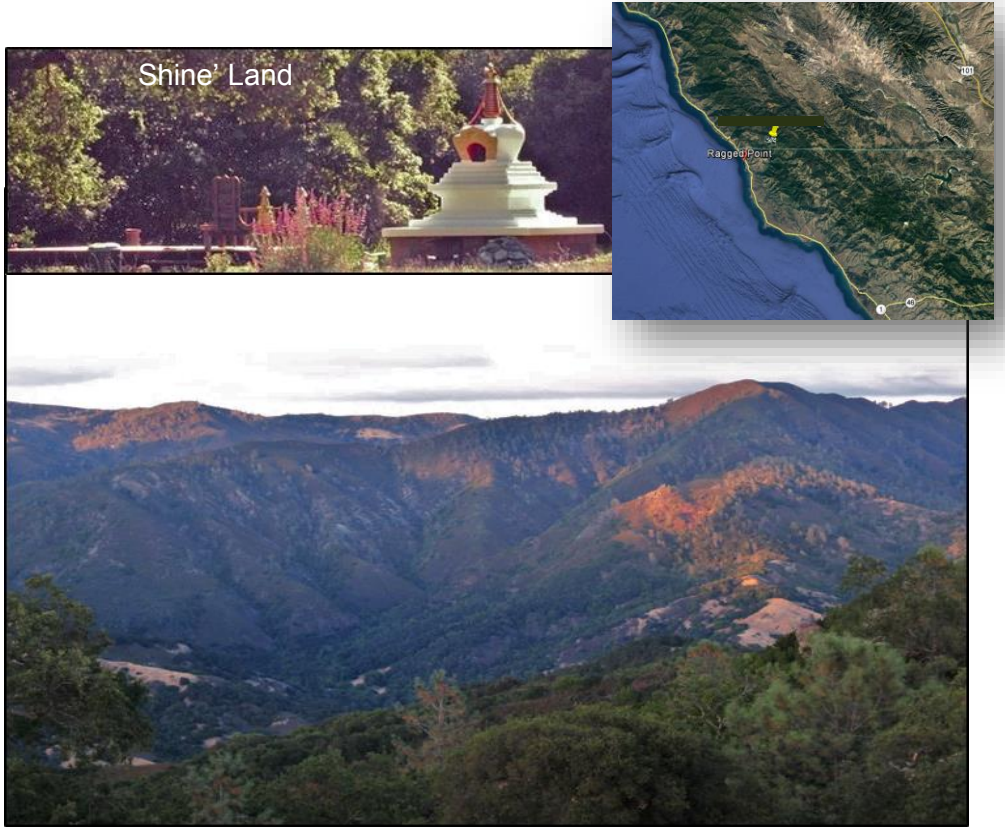
In 2017 EASI estimated $4M in gross value for wetland credits and $20M for species/habitat credits. (The land's Corporforo Creek is a headwater for sturgeon spawning in central CA.)

Mitigation bank development costs were also studied leading to a predicted ROI of 4.5:1.

The property exists in an area with essentially zero competition from other mit-credit sellers.

Demand for mitigation credits would come from local city, county and state agencies as well as industry operating in the Central Coast region.

During the land survey, EASI accidentally identified **complications** with the county-recorded property boundaries. (Permanent structures on federal land!)



This put mitigation bank on hold – probably indefinitely.

Case Study Lessons

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<u>Lesson 5</u> – Attractive ROI is not always the determining factor in project decision making.

Case Study 5: A landowner in **Umatilla County, Oregon** considered building the only mitigation bank in the eastern part of the state, on a 2300 acre property.

In 2017 EASI estimated the gross value of wetland credits to be $30M on 355 acres, or $85,000/acre.

Ecological restoration costs, plus costs to set up a mitigation bank endowment fund, led to a total development cost of about $5M. That high cost, and uncertain demand for mit-credits in eastern Oregon kept project ROI at 0.6:1.

However, by deferring high restoration costs to later development phases, and by securing Letters of Interest from prospective credit buyers, ROI could grow to 2.6:1.

Other project flex points were identified to increase ROI, allowing the landowner to scenario-plan future development options. He is currently negotiating cost-share options with a local Native American group interested in fisheries restoration.

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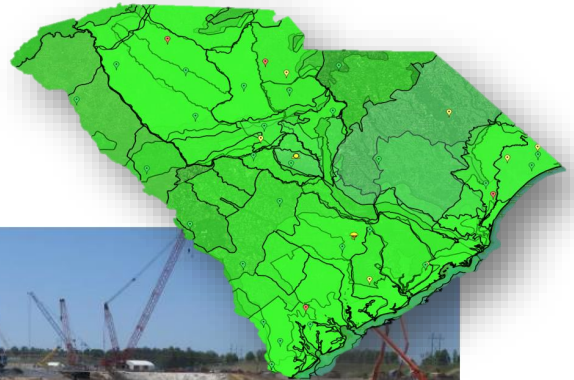
Lesson 5 – Attractive ROI is not always the determining factor in project decision making.

<u>Lesson 6</u> – Mitigation credits don't always generate attractive ROI.

Case Study 6: A national energy company wanted to learn about mitigation credit markets in **South Carolina**.

In 2017 the company purchased a state-owned nuclear power plant with the promise of decommissioning the facility and replacing it with natural gas generation.

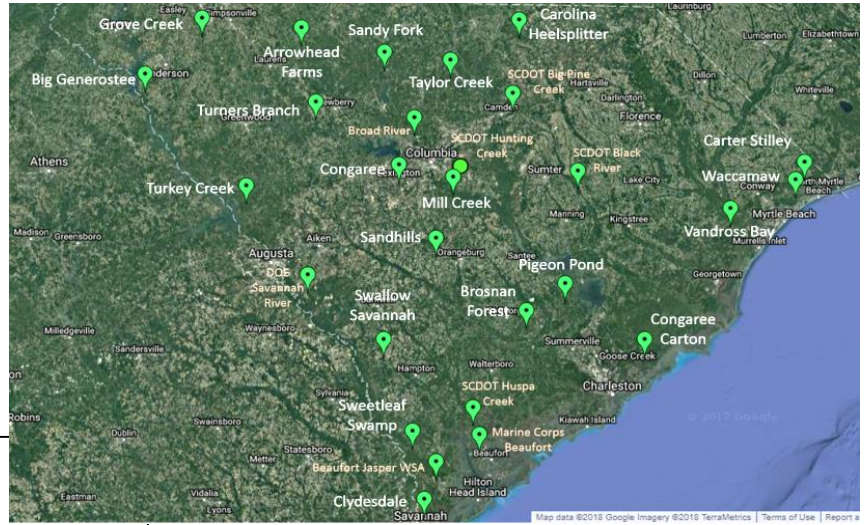
Decommissioning would leave a large depression in the landscape. The company wondered if wetlands restoration and mitigation banking could help them recover some of the costs.

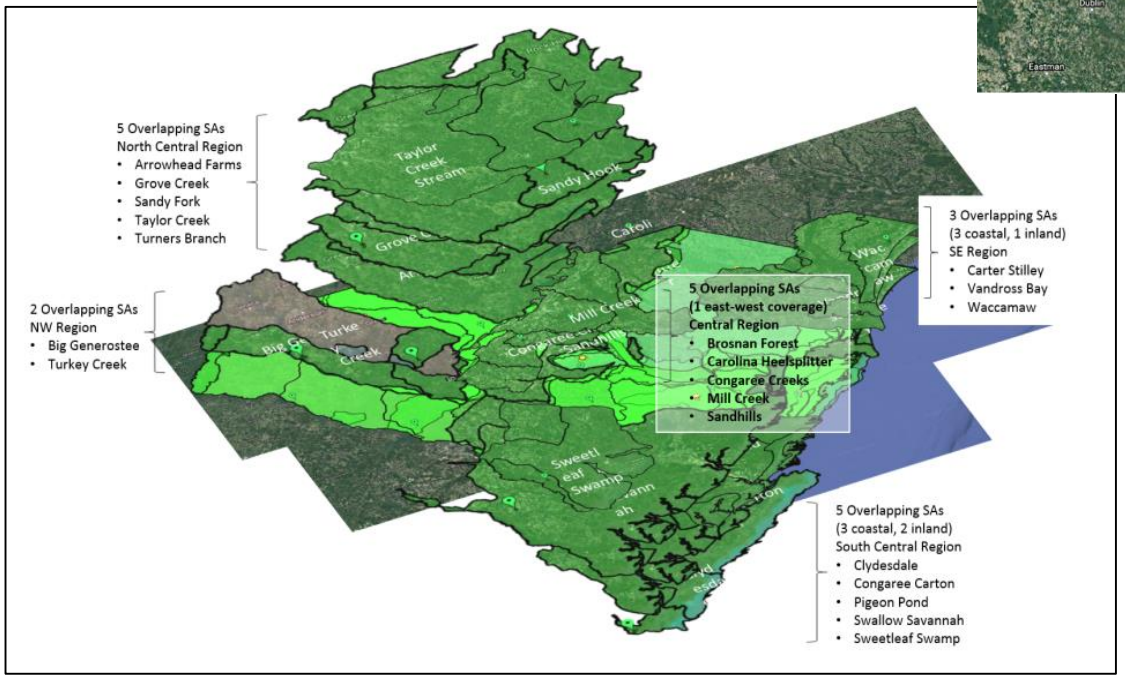


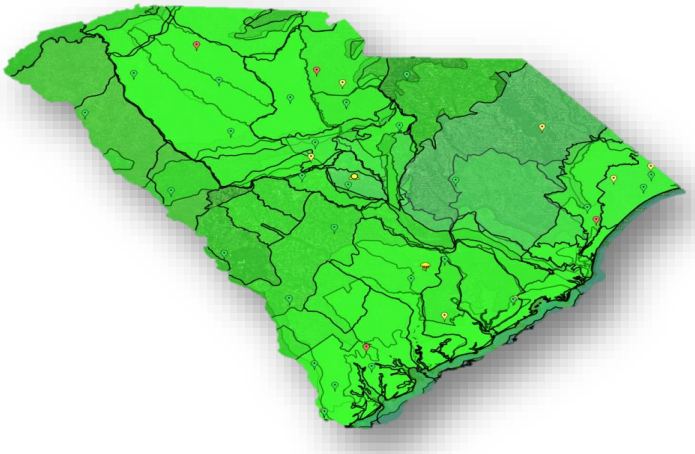
The company asked EASI to do a market analysis of South Carolina wetlands banking.

South Carolina is home to a large number of wetland mitigation banks. The *service areas* for these banks often occupy entire watersheds.

EASI discovered that the state was essentially blanketed with wetland banks – there were no open business niches.



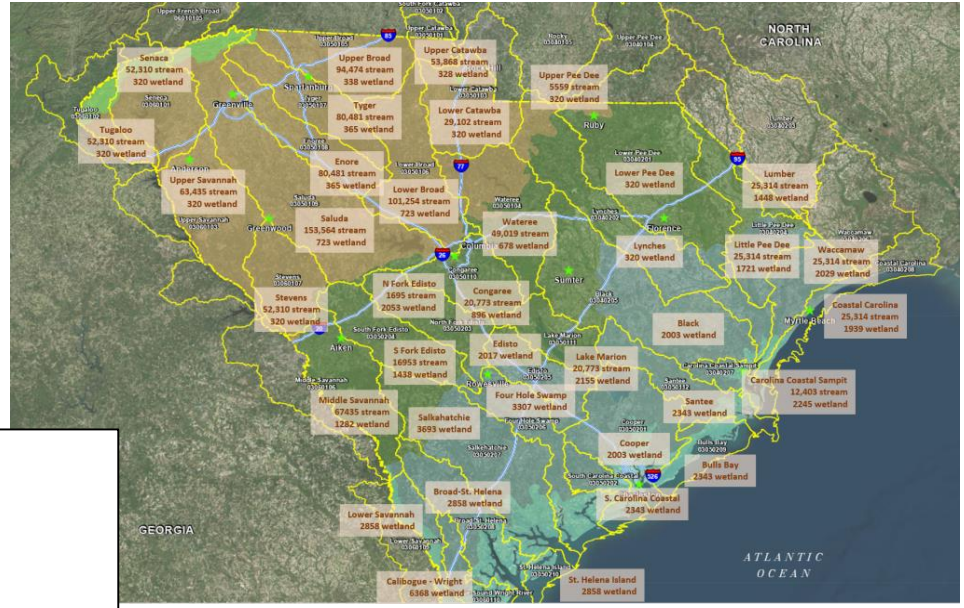




South Carolina mitigation bank service areas – plan view

EASI also studied the number of available mitigation credits to see what future sales competition might look like.

Several thousand available wetland credits meant competition for sales would be stiff.



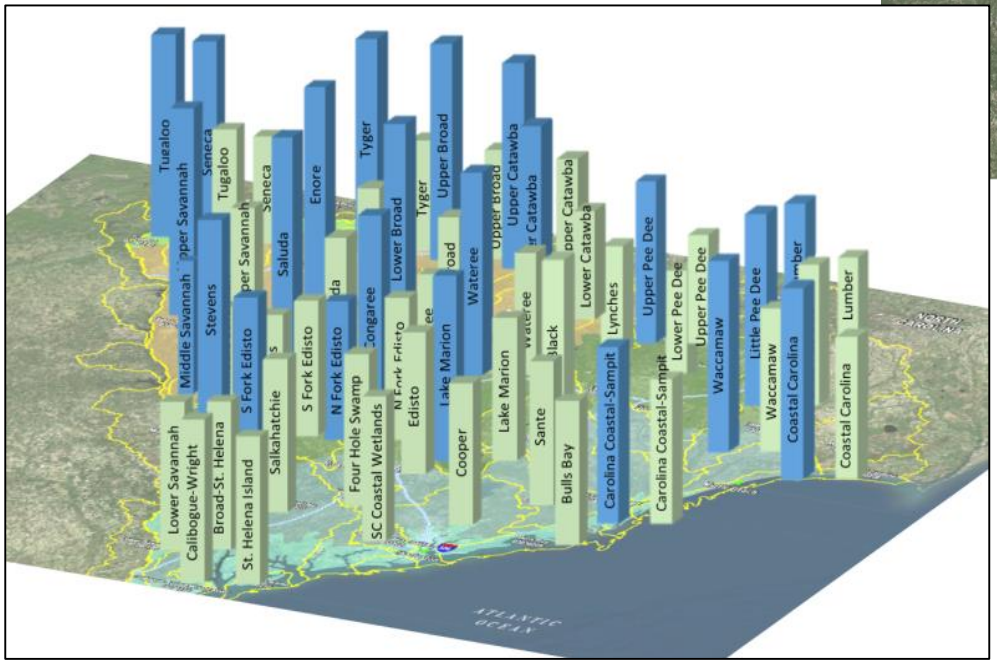


Table I.

Available Commercial credits by Asset Type and Credit Type

Units	*Asset Type*	*Credit Type*
38.23	wetland	buffer enhancement
4.8	wetland	buffer preservation
519.62	species	Carolina heelsplitter
3300.63	wetland	freshwater enhancement/restoration
419.42	wetland	freshwater preservation
300.6	wetland	salt marsh enhancement/restoration
39.8	stream	salt marsh preservation
15164.27	stream	enhancement
82112.78	stream	preservation
63395.38	stream	restoration
0.34	wetland	wetlands

Total Available Commercial Credits	
4,064.01	All wetland types
160,712.23	All stream types
519.62	All species

Case Study Lessons

Lesson 1 – Mitigation credits can be bona fide indicators of land value and important sources of business revenue.

Lesson 2 – Mitigation credits, although intangible assets, have known market value. That value can be recognized for purposes of debt financing.

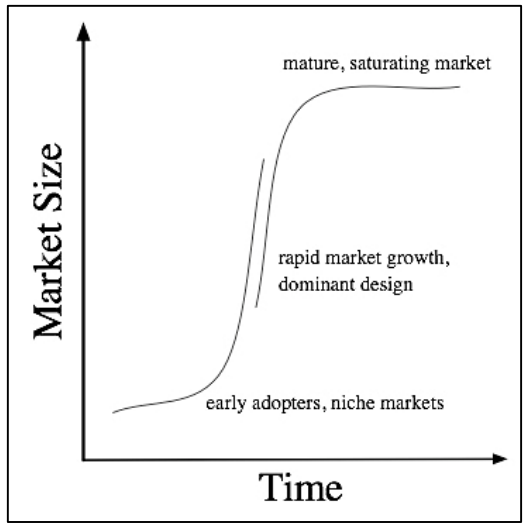
Lesson 3 – Developing a mitigation bank can be costly, and isn't always necessary. Just knowing the *potential* mitigation credit (eco-asset) value can boost land sale prices.

Lesson 4 – The gift value of land, and the related tax offset, can increase by taking eco-asset values into consideration. This is also true when figuring estate value.

Lesson 5 – Attractive ROI is not always the determining factor in project decision making.

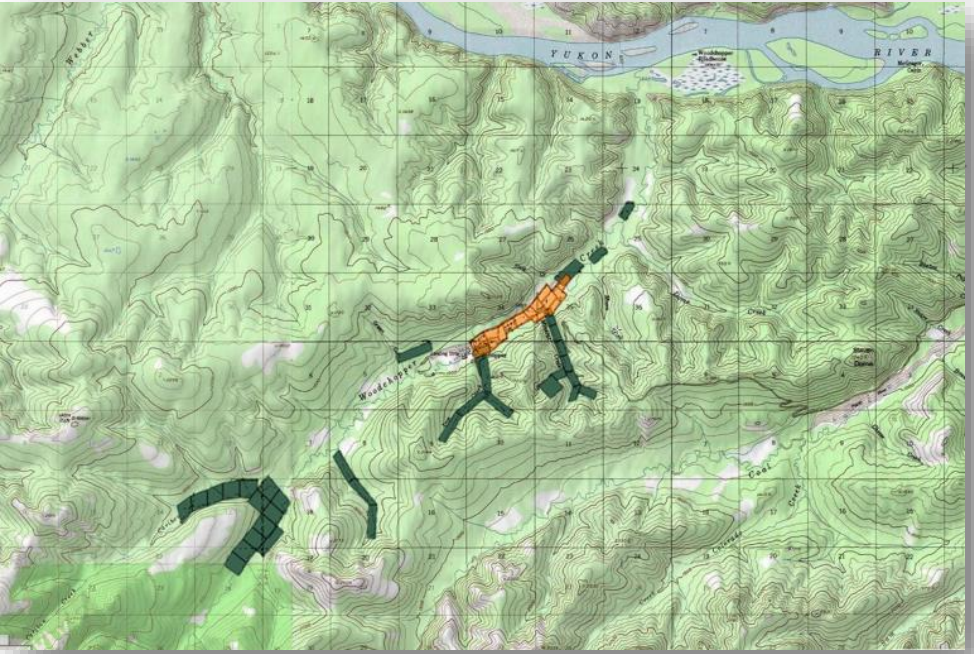
Lesson 6 – Mitigation credits don't always generate attractive ROI.

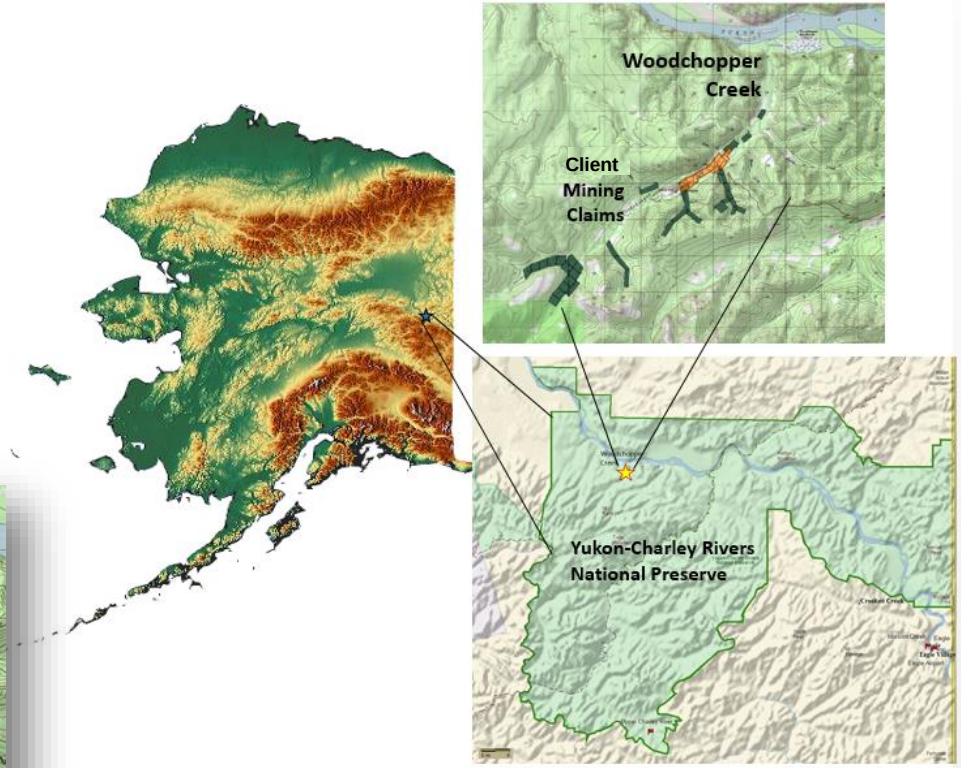
<u>Lesson 7</u> – Some mitigation credit markets may be saturated.



Case Study 7: A 1340 acre inholding of **Alaska's Yukon-Charley Rivers National Preserve** included patented and unpatented mining claims. The landowner decided to sell the claims in 2018 and wanted to know if eco-assets would boost the asking price.

The National Park Service wanted to consolidate federal land ownership and minimize future mining disturbance. They offered to buy the claims.





At what price should the landowner/claims-holder sell?

- What are wetland mitigation credit comparables?
- What are the mining claim comparables?
- Were these asset values compatible?

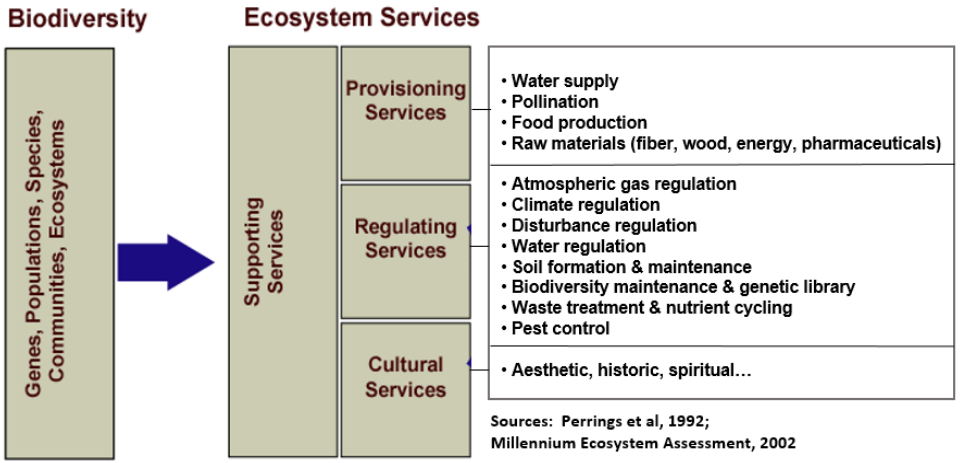
Yukon River at Woodchopper Creek

Measure
Yukon River

Wildlife on
Woodchopper Creek

35 species have
Alaska F&G wildlife
management plans!

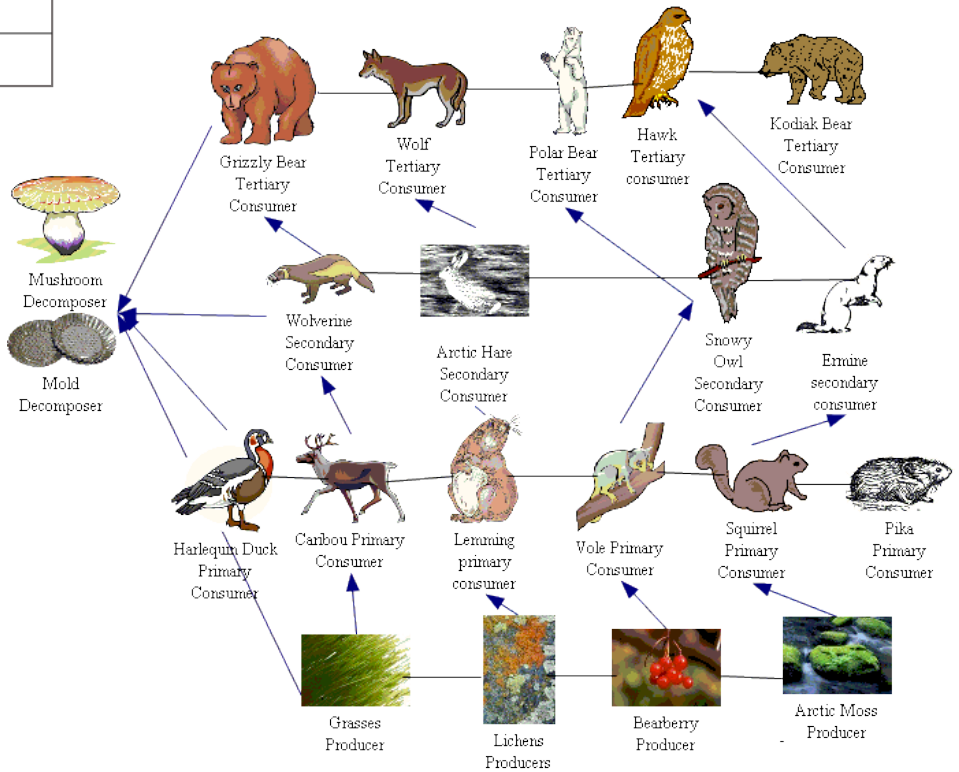
Turns out that biodiversity is the foundation for all ecosystem services!



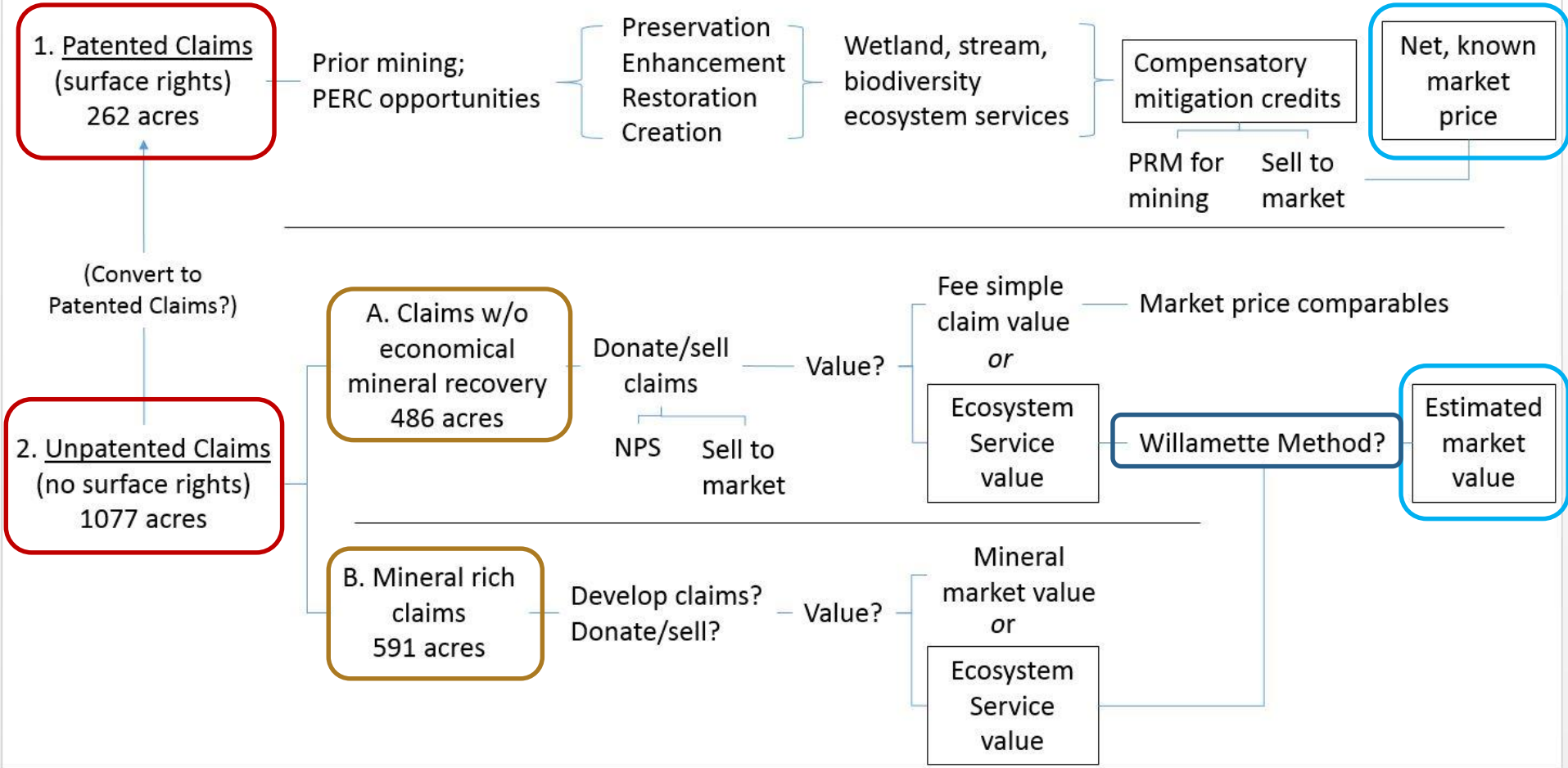
All economic activity
All quality of life

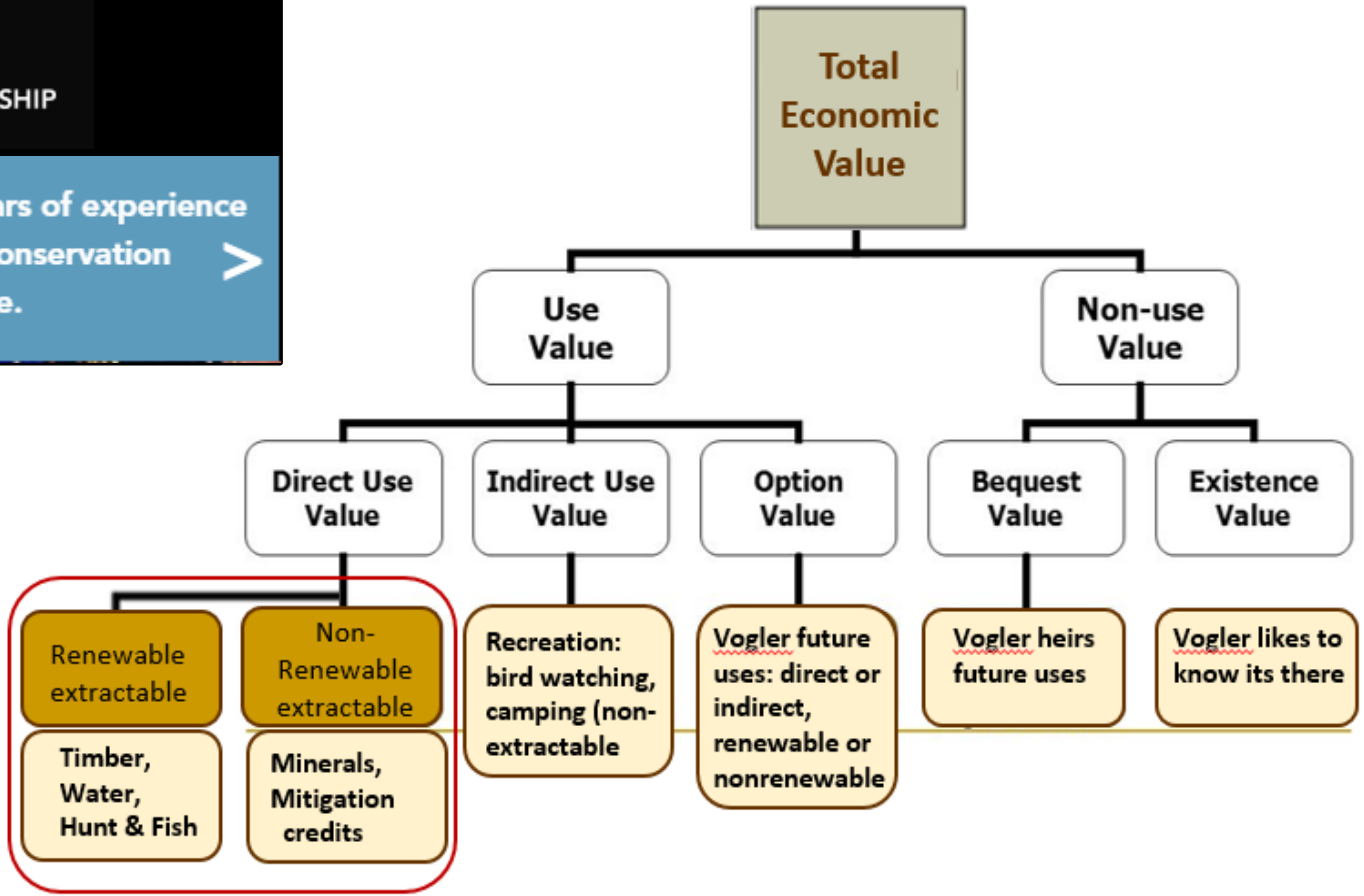
Total Economic Value (TEV)

The Woodchopper Creek property is a highly desirable landscape. But would NPS pay a premium price based on willingness-to-pay for high ecosystem service values?



Client Mining Claims – Yukon-Charley Rivers National Preserve





Hard Eco-Asset Market Value

Patented Claims & Surface Rights

EASI

'Soft' Eco-Asset Market Value?

Unpatented Claims & Mineral Rights

Willamette Partnership

Case Study Lessons

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Lesson 6 – Mitigation credits don't always generate attractive ROI.

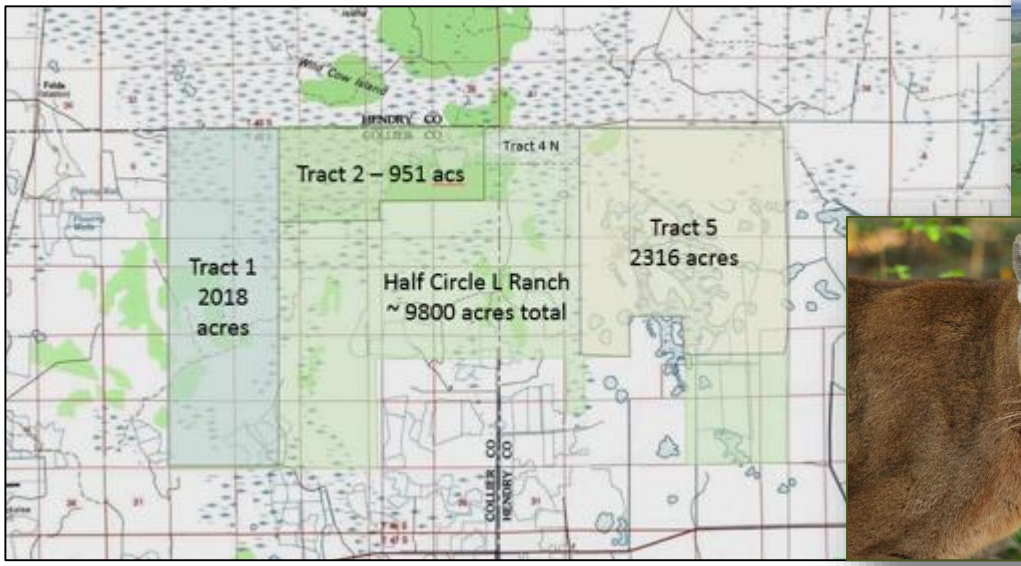
Lesson 7 – Some mitigation credit markets may be saturated.

<u>Lesson 8</u> – Hard eco-asset market value is not everything. 'Soft' EAV can build willingness-to-pay for a highly attractive property, especially if advocated by a reputable source.

Case Study 8: A 10,000 acre ranch in south Florida, one of the area's best know historic and natural landscapes, went on the market after four generations of family ownership.

Before deciding to make an offer on the ranch, a potential buyer in Louisiana contacted EASI about mitigation bank development options. Could he earn back the land purchase cost and make additional money?

The ranch had been subdivided into 6 tracts, with the agricultural land separated from the ranch land. Four tracts were considered wild enough to qualify for wetlands and/or species mitigation banking – including conservation credits for the rare Florida panther.



Which, if any, of the tracts should our buyer consider, and why?

The buyer had grown up hiking, camping and hunting there – on Tract 2 in particular. Should a land purchase be based on business or personal considerations?

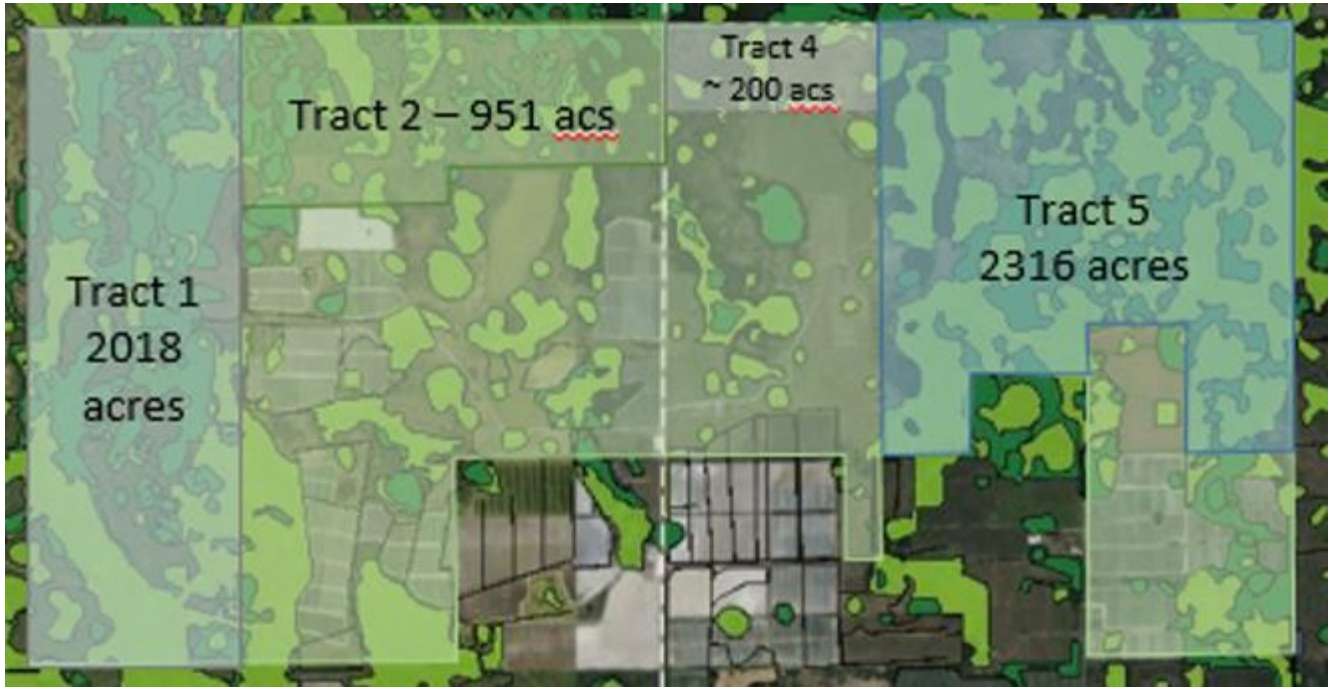
Really?

<u>EASI's challenge</u> – to model *six* different land purchase options. ~ whoa

- All four tracts

- Tract 1 alone
- Tract 2 alone
- Tract 5 alone

- Tracts 1 & 2 together
- Tracts 2, 4 & 5 together



The EASI Project Performance Table

Discounted cash flow analysis and return on investment for projected mitigation bank revenues vs. costs – 20 project years

		Year End:	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	(Confirmation Columns)	
		Project Year:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
A: Mitigation Credit Inventory			Credits Released																				Total Credits Released	
Total Wetland Credits Authorized	3777.25						566.59		802.67		802.67		802.67		802.67								3,777	wetlands
Tract 1	1614.40																							
Tract 2	713.25																							
Tract 4	60.00																							
Tract 5	1389.60																							
Stream Credit-Feet Authorized	0.00						0		0		0		0		0								0	stream
Total Florida Panther Credits Authorized	1707.75						256.16		362.90		362.90		362.90		362.90								1,708	panther
Tract 1	403.60																							
Tract 2	237.75																							
Tract 4	140.00																							
Tract 5	926.40																							
Total Potential Credit-Acres (1:1 ratio)	5485.00						822.75		1165.56		1165.56		1165.56		1165.56								5,485	total credits released
Total Authorized Stream Feet-Credits (stream)	0																							
B: Mitigation Credit Release and Sale																								
-- **Wetland / Riparian Credit Release $**	3777.25	credit-acres					pre-release -->	performance release -->																
Pre-Construction & year 0 (prelease = 15%)	15%						566.59	0%	25%	0%	25%	0%	25%	0%	25%	0%	0%	0%	0%	0%	0%	0%		
Performance Credit Releases	25%						0.00	0.00	802.67	0.00	802.67	0.00	802.67	0.00	802.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3,777	wetland credits released
Credits Available							566.59	529.59	1295.25	1258.25	2023.92	1986.92	2752.58	2715.58	3481.25	3444.25	3407.25	3370.25	3333.25	3296.25	3259.25	3222.25		
Credits Sold @ Market --> use rate	37.00						37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00		
Credits Sold @ Bulk $	-						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Credits Sold/Year							37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	37.00	592	sold / use rate 16%
Ending Credit Inventory:							529.59	492.59	1258.25	1221.25	1986.92	1949.92	2715.58	2678.58	3444.25	3407.25	3370.25	3333.25	3296.25	3259.25	3222.25	3185.25	3,185	remaining 84%
Credit Sales Running Total							37.00	74.00	111.00	148.00	185.00	222.00	259.00	296.00	333.00	370.00	407.00	444.00	481.00	518.00	555.00	592.00	3,777	total wetland credits
-- **Stream Credit Release Schedule**	0	linear foot-credits					pre-release -->	performance release -->																
Pre-Construction & year 0 (prelease = 15%)	15%	0.00					0.00		0.25		0.25		0.25		0.25									
Performance Credit Releases	25%						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	stream credits released
Credits Available							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Credits Sold @ Market --> use rate	0.0						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Credits Sold @ Bulk $	-						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Credits Sold/Year							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		sold / use rate
Ending Credit Inventory:							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		remaining
Credit Sales Running Total							0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		total authorized
-- **Florida panther**	1707.75	credit-acres					pre-release -->	performance release -->																
Pre-Construction & year 0 (prelease = 7.5%)	15%						256.16	0%	25%	0%	25%	0%	25%	0%	25%	0%	0%	0%	0%	0%	0%	0%		
Performance Credit Releases	25%						0.00	0.00	362.90	0.00	362.90	0.00	362.90	0.00	362.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,708	FL panther released
Credits Available							256.16	167.93	442.60	354.38	623.05	540.82	815.49	727.26	1001.93	913.70	825.47	737.25	649.02	560.79	472.56	384.33		
Credits Sold @ Market --> use rate	88.23						88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23		
Credits Sold @ Bulk $	-						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Total Credits Sold/Year							88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	88.23	1,412	sold / use rate 83%
Ending Credit Inventory:							167.93	79.71	354.38	266.15	540.82	452.59	727.26	639.03	913.70	825.47	737.25	649.02	560.79	472.56	384.33	296.10	296	remaining 17%
Credit Sales Running Total							88.23	176.46	264.68	352.91	441.14	529.37	617.59	705.82	794.05	882.28	970.50	1058.73	1146.96	1235.19	1323.42	1411.64	1,708	total panther credits
		Project Year:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	5485	total all credits
C: Total Mitigation Bank Revenue:																								
Market Pricing Rate:	105.5%		$ 93,533	$ 98,684	$ 104,111	$ 109,838	$ 115,879	$ 122,252	$ 128,976	$ 136,069	$ 143,553	$ 151,443	$ 159,778	$ 168,566	$ 177,837	$ 187,618	$ 197,937	$ 208,824	$ 220,309	$ 232,426	$ 245,210	$ 258,696		
Wetland Credit Revenue	$88,663						$ 4,287,508	$ 4,523,321	$ 4,772,103	$ 5,034,569	$ 5,311,470	$ 5,603,601	$ 5,911,739	$ 6,236,348	$ 6,579,980	$ 6,941,879	$ 7,323,683	$ 7,726,485	$ 8,151,442	$ 8,599,771	$ 9,072,758	$ 9,571,760	$ 105,649,078	wetland credit revenue
Market Pricing Rate:	0%																							
Stream Credit Revenue	$0						$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -		
Market Pricing Rate:	103.0%		$ 14,078	$ 15,345	$ 16,726	$ 18,231	$ 19,872	$ 21,661	$ 23,610	$ 25,735	$ 28,051	$ 30,576	$ 33,328	$ 36,327	$ 39,597	$ 43,161	$ 47,045	$ 51,279	$ 55,894	$ 60,925	$ 66,408	$ 72,385		
Panther Credit Revenue	$12,916						$ 1,753,289	$ 1,911,085	$ 2,083,082	$ 2,270,560	$ 2,474,910	$ 2,697,652	$ 2,940,441	$ 3,205,080	$ 3,493,538	$ 3,807,956	$ 4,150,672	$ 4,524,832	$ 4,931,413	$ 5,375,241	$ 5,859,012	$ 6,386,323	$ 57,864,485	panther credit revenue
MB Credit Sales Revenue			$ -	$ -	$ -	$ -	$ 6,040,796	$ 6,434,405	$ 6,855,186	$ 7,305,129	$ 7,786,380	$ 8,301,253	$ 8,852,240	$ 9,442,028	$ 10,073,518	$ 10,743,835	$ 11,474,354	$ 12,250,718	$ 13,082,855	$ 13,375,012	$ 14,331,771	$ 15,358,083	$ 163,513,563	total credit revenue
Trust Fund Interest Earned			$ -	$ -	$ -	$ -	$ -	$ 181,224	$ 385,129	$ 613,893	$ 650,726	$ 689,770	$ 731,156	$ 775,026	$ 821,527	$ 870,819	$ 923,068	$ 978,452	$ 1,037,159	$ 1,099,389	$ 1,165,352	$ 1,235,273	$ 11,316,738	TF interest earned
Total MB Revenues			$ -	$ -	$ -	$ -	$ 6,040,796	$ 6,615,629	$ 7,240,315	$ 7,919,021	$ 8,437,107	$ 8,991,023	$ 9,583,396	$ 10,217,054	$ 10,895,045	$ 11,620,654	$ 12,397,422	$ 13,229,169	$ 14,120,014	$ 15,074,400	$ 16,097,123	$ 17,193,356	$ 175,671,526	total eco-asset revenue
		Project Year:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
D. Other Income (Potential Compatible Uses)																								
Market Pricing Rate:	103%																							
Tract 1 grazing, timber, hunting, tourism			$ 152,806	$ 157,390	$ 162,112	$ 166,975	$ 171,984	$ 177,144	$ 182,458	$ 187,932	$ 193,570	$ 199,377	$ 205,358	$ 211,519	$ 217,864	$ 224,400	$ 231,132	$ 238,066	$ 245,208	$ 252,565	$ 260,141	$ 267,946		
Tract 2 grazing, timber, hunting, tourism			$ 127,326	$ 131,163	$ 135,116	$ 139,188	$ 143,382	$ 148,301	$ 152,750	$ 157,332	$ 162,052	$ 166,914	$ 171,321	$ 177,079	$ 182,391	$ 187,863	$ 193,499	$ 199,304	$ 205,283	$ 211,442	$ 217,785	$ 224,319		
Tract 5 grazing, timber, hunting, tourism			$ 155,430	$ 160,155	$ 164,959	$ 169,908	$ 175,005	$ 180,256	$ 185,663	$ 191,233	$ 196,970	$ 202,879	$ 208,966	$ 215,235	$ 221,692	$ 228,342	$ 235,193	$ 242,248	$ 249,516	$ 257,001	$ 264,711	$ 272,653		
Compatible Use annual totals			$ 436,221	$ 448,308	$ 462,187	$ 476,671	$ 490,371	$ 505,700	$ 520,871	$ 536,497	$ 552,592	$ 569,170	$ 586,245	$ 603,832	$ 621,947	$ 640,606	$ 659,824	$ 679,619	$ 700,007	$ 721,008	$ 742,638	$ 764,917	$ 11,721,433	compatible use revenue
		Project Year:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	$ 187,392,959	grand total all revenues
E. Mitigation Bank Costs:																								
Land Cost per acre	$ 3,300		$ 18,100,500	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 18,100,500	land cost
Mineral rights - cost of Right of Entry Release	30%		$ 5,430,150	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 5,430,150	mineral rights release
Annual Cost Adjustment (CPI)	103%																							
Management (Operation & Maintenance)	$ 753,597		$ 753,597	$ 776,205	$ 799,491	$ 823,476	$ 848,180	$ 873,625	$ 899,834	$ 926,829	$ 954,634	$ 983,273	$ 1,012,771	$ 1,043,154	$ 1,074,449	$ 1,106,682	$ 1,139,883	$ 1,174,079	$ 1,209,302	$ 1,245,581	$ 1,282,948	$ 1,321,437	$ 20,249,431	management costs
Trust Fund Costs			$ -	$ -	$ -	$ -	$ 3,020,398	$ 3,217,203	$ 3,427,593	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,665,194	Trust Fund costs

HCLR Mitigation Bank Trust Fund Calculator

Project Year		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	Totals	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
mitigation bank revenues						$ 6,040,796	$ 6,434,405	$ 6,855,186	$ 7,305,129	$ 7,786,380	$ 8,301,253	$ 8,852,240	$ 9,442,028	$ 10,073,518	$ 10,743,835	$ 11,474,354	$ 12,250,718	$ 13,082,855	$ 13,375,012	$ 14,331,771	$ 15,358,083	$ 163,513,563	MB income
build Trust Fund principle @ 50% of credit sales	50%					$ 3,020,398	$ 3,217,203	$ 3,427,593	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,665,194	TF principle
Interest earned	6%					$ -	$ 181,223.83	$ 385,129	$ 613,893	$ 650,726	$ 689,770	$ 731,156	$ 775,026	$ 821,527	$ 870,819	$ 923,068	$ 978,452	$ 1,037,159	$ 1,099,389	$ 1,165,352	$ 1,235,273	$ 12,157,962	interest earned
Trust Fund cumulative principle + interest						$ 3,020,398	$ 6,418,825	$ 10,231,547	$ 10,845,440	$ 11,436,166	$ 12,185,936	$ 12,917,092	$ 13,692,118	$ 14,513,645	$ 15,384,464	$ 16,307,532	$ 17,285,983	$ 18,323,142	$ 19,422,531	$ 20,587,883	$ 21,823,156	$ 21,823,156	total TF value

Performance Table contents close up

A: Mitigation Credit Inventory		Credits Released
Total Wetland Credits Authorized	3777.25	
Tract 1	1614.40	
Tract 2	713.25	
Tract 4	60.00	
Tract 5	1389.60	
Stream Credit-Feet Authorized	0.00	
Total Florida Panther Credits Authorized	1707.75	
Tract 1	403.60	
Tract 2	237.75	
Tract 4	140.00	
Tract 5	926.40	
Total Potential Credit-Acres (1:1 ratio)	5485.00	
Total Approved Linear Feet-Credits (Stream)	0	

B: Mitigation Credit Release and Sale		
-- Wetland / Riparian Credit Release Schedul	3777.25	credit-acres
Pre-Construction & year 0 (prelease = 15%)	15%	
Performance Credit Releases	25%	
Credits Available		
Credits Sold @ Market --> use rate	37.00	

C: Total Mitigation Bank Revenue:	
Market Pricing Rate:	105.5%
Wetland Credit Revenue	$88,663
Market Pricing Rate:	0%
Stream Credit Revenue	$0
Market Pricing Rate:	109.0%
Panther Credit Revenue	$12,916
MB Credit Sales Revenue	
Trust Fund Interest Earned	
Total MB Revenues	
	Project Year:

D. Other Income (Potential Compatible Uses)	
Market Pricing Rate:	103%
Tract 1 grazing, timber, hunting, tourism	
Tract 2 grazing, timber, hunting, tourism	
Tract 5 grazing, timber, hunting, tourism	
Compatible Use annual totals	
	Project Year:

E. Mitigation Bank Costs:	
Land Cost per acre	$ 3,300
Mineral rights - cost of Right of Entry Release	30%
Annual Cost Adjustment (CPI)	103%

Mit-bank performance results were not uniform across the various options.

Why? Because Tract characteristics varied.

Biggest challenge? Absorption rate was small.

Purchase of the smaller Tract 2 made the most immediate business sense.

Key Project Financials (20 years)		
Land purchase price		$ 18,100,500
Mineral Rights		$ 5,430,150
Start up capital required		$ 6,898,289
Management costs		$ 20,249,431
Trust Fund Costs		$ 12,559,948
Total MB costs		$ 62,026,571
MB gross earnings		$ 187,392,959
MB net earnings (ROI $)		**$ 125,366,388**
Base Return on Investment (no NPV)		202%
	5.00%	124%
	10.00%	76%
	15.00%	45%

	Comparing Tract Performances						
	Tract 1	Tract 2	Tract 4	Tract 5		Tracts 1 & 2	Tracts 2, 4, 5
	$ 6,659,400	$ 3,138,300	$ -	$ 7,642,800		$ 9,797,700	$ 11,441,100
	$ 1,997,820	$ 941,490	$ -	$ 2,292,840		$ 2,939,310	$ 3,432,330
	$ 2,987,349	$ 1,585,183	$ -	$ 2,977,281		$ 4,161,265	$ 4,322,207
	$ 8,816,048	$ 5,297,323	$ -	$ 9,798,784		$ 11,952,231	$ 13,594,523
	$ 5,468,258	$ 3,285,727	$ -	$ 6,077,812		$ 7,413,512	$ 8,432,163
	$ 31,130,608	$ 21,413,625	$ -	$ 33,422,608		$ 39,711,588	$ 43,728,618
	$ 187,392,959	$ 187,392,959	$ -	$ 187,392,959		$ 187,392,959	$ 187,392,959
	$ 156,262,351	**$ 165,979,334**	**$ -**	**$ 153,970,351**		**$ 147,681,371**	**$ 143,664,341**
NPV/ROI Options	502%	775%	$ -	461%		372%	329%
5%	317%	717%		290%		234%	205%
10%	214%	502%		195%		154%	134%
15%	150%	367%		135%		105%	89%

Case Study Lessons

Lesson 1 – Mitigation credits can be bona fide indicators of land value and important sources of business revenue.

Lesson 2 – Mitigation credits, although intangible assets, have known market value. That value can be recognized for purposes of debt financing.

Lesson 3 – Developing a mitigation bank can be costly, and isn't always necessary. Just knowing the *potential* mitigation credit (eco-asset) value can boost land sale prices.

Lesson 4 – The gift value of land, and the related tax offset, can increase by taking eco-asset values into consideration. This is also true when figuring estate value.

Lesson 5 – Attractive ROI is not always the determining factor in project decision making.

Lesson 6 – Mitigation credits don't always generate attractive ROI.

Lesson 7 – Some mitigation credit markets may be saturated.

Lesson 8 – Hard eco-asset market value is not everything. 'Soft' EAV can build willingness to pay for a highly attractive property, especially if advocated by a reputable source.

<u>Lesson 9</u> – It's not all about gross eco-asset value. Development cost and market conditions are critical determinants of project success and related land value.

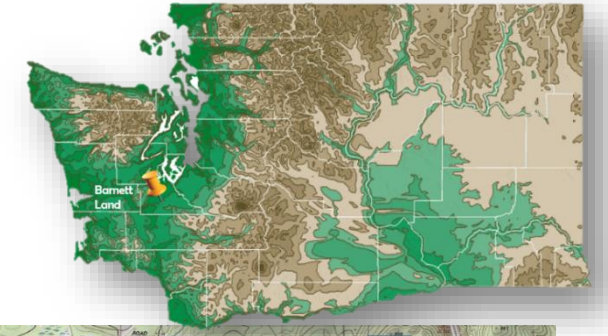
Case Study 9: A 1700 acre ranch in **Thurston County, WA** was offered for sale by the landowner in 2018.

The ranch holds valuable wetland and stream features, as well as land occupied by the rare Mazama pocket gopher. Oregon white oak is also present, representing three creditable eco-asset types.

Developers want to buy this property; the owner wants to conserve it.

The State Dept. of Ecology wants to acquire it as a wildlife preserve.

The Conservation Fund made an offer of $9M or $5300/ac, but the landowner thinks it is worth more. He turned to EASI.



EASI estimated a total of $43M in gross eco-asset value for wetlands, MPG and OWO mitigation credits.

At 5% discount rate over 20 years, EASI estimated mitigation bank ROI will be 5.5:1.

A subsequent appraisal conducted by Kidder Mathews affirmed the mit-credit values, extended the mit-bank performance period to 30 years and applied a 17.5% discount rate.

KM affirmed that mitigation banking was highest and best use and estimated $14.6M in conservation value ($8600/ac).

Conservation Fund acted as though they never heard of land mitigation credit value!

The landowner's counteroffer will be firm $15M.

"That's ridiculous!"

(From the CF Website)

Managing Mitigation Funds to Conserve Bird Habitat

Conservation Banking on the Rise in Texas

In Wyoming, Using Mitigation To Benefit Family Ranches

CONSERVATION LEADERSHIP NETWORK

June 10, 2019

Upcoming Courses

Training Course for Mitigation Banking & In-Lieu Fee Program Interagency Review Teams

13th Annual Course Offering!

June 10-14, 2019

This course is offered by the US Army Corps of Engineers, US Environmental Protection Agency and US Fish & Wildlife Service, in partnership with The Conservation Fund. This comprehensive week-long training is for federal and state regulators who serve on mitigation bank and in-lieu fee program Interagency Review Teams (IRTs).

LATEST TWEETS

Our @SaginawBayWIN initiative is honored to be partnering with four of the @LPGA 's best for the first ever @DowGLBI ! Follow along with us from July 15-20 as we

Case Study Lessons

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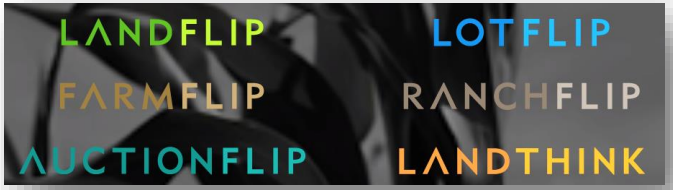
Lesson 9 – It's not all about gross eco-asset value. Development cost and market conditions are critical determinants of project success and related land value.

<u>Lesson 10</u> – Knowledgeable buyers will underbid eco-asset rich properties knowing they can be flipped.



EASI

As For the Future…

Eco-Asset Solutions & Innovations LLC

San Francisco and South Lake Tahoe

01-415-706-6154

info@easillc.com

California OUTDOOR PROPERTIES

Selling rural land can be easier if the eco-asset values are known!

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< BACK TO PROPERTY SEARCH RESULTS

N3 CATTLE COMPANY

Livermore, California

$72,000,000 | 50,500 +/- Acres | Santa Clara County

$1425/ac

DOWNLOAD SALES FLYER | SEND TO A FRIEND

PROPERTY TYPE: Cattle, Equestrian, Farms and Ranches, Fishing and Hunting, Homes and Cabins, Recreation, Waterfront

VIDEO | MAP

Todd Renfrew
Office: (707) 455-4444
Fax: (707) 455-0455

Contact Todd
About Todd
View All of Todd 's Listings

What if the prop description included this:

"Ranch carries $625M in developable ecological assets"

PROPERTY DESCRIPTION:

The iconic N3 Cattle Company is on the market for the first time in 85 years. This beautiful and expansive California property spans 50,500 acres through four counties, making it the largest land offering in the State of California. Located just south of Livermore, and east of Oakland and San Jose, it is easily accessed from San Francisco, the Peninsula and the East Bay. The Ranch is completely private and uniquely preserved, healthy and wild as it has been for hundreds of years. It is a vital and rare haven of original California landscape and wildlife. The property encompasses 80 square miles of diverse terrains, flora, fauna, and important watersheds and creeks. N3 has been a working cattle ranch for 85 years and offers a rare look at a way of life quickly disappearing. Sprinkled with a dozen rustic cabins, the ranch also hosts one of the most famous, sustainable hunting operations in the state. Its owners are fourth-generation ranchers and are respected members of the ranching community. The ranch is enrolled in the Williamson Act and has no conservation easements.

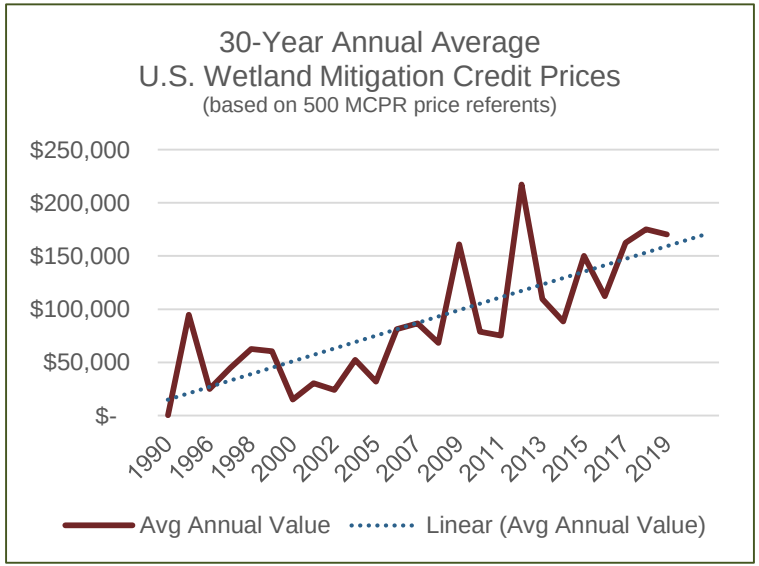
We've shown real world examples, not speculation.

The lessons apply to all 'large' rural properties.

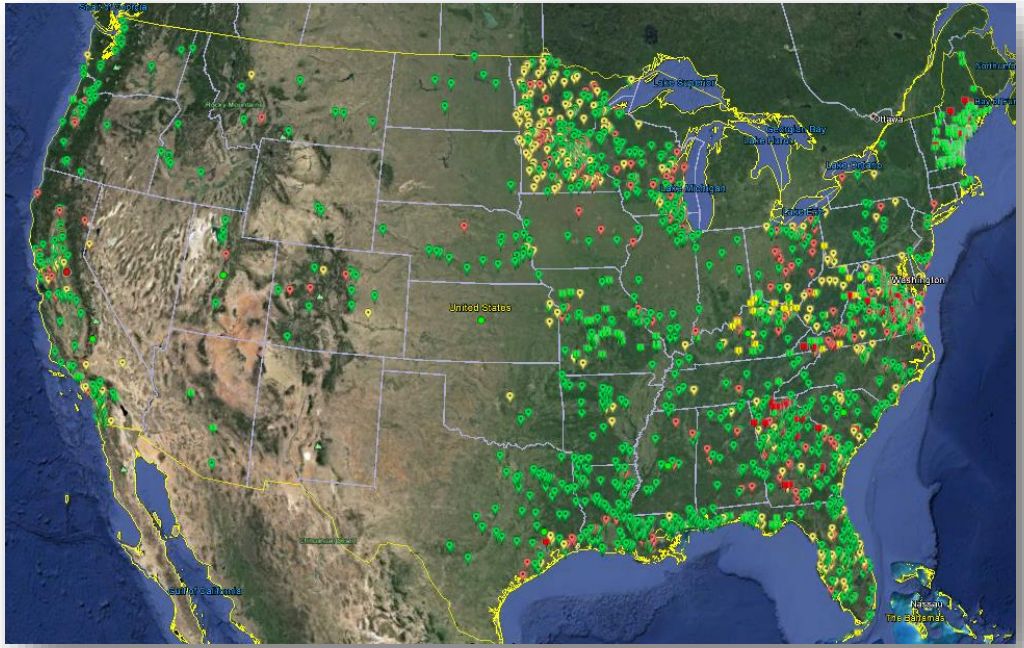
About 1600 commercial mitigation banks have produced nearly <u>$400 *billion*</u> in assets.

In California, 140 commercial mit-banks have produced about <u>$11 billion</u> in assets.

The 2019 mit-credit trend chart looks like this:



U.S. Mitigation Banks



This is a national movement; there's no going back even if political winds shift now and then. Key questions include:

- How fast will the eco-asset value movement expand?
- Is there a benefit to 'early entry' in terms of land value?
- When will real estate professionals uniformly apply new methods?

The net effect so far has been to dramatically increase land conservation in the U.S.

Resource managers couldn't be happier about the attention given to natural capital.

AND … we have seen an increase in the utility and market value of rural land.

Land appraisal methods now have to catch up. Highest and best use determinations *need* to consider eco-asset revenue potential.

In summary, here's why:

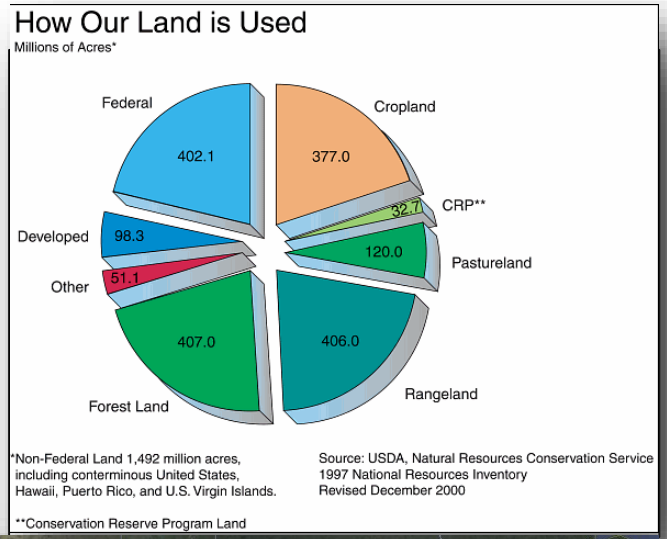
- Eco-assets are like any other natural resource that is anchored to the land – water, minerals, or oil & gas
- Mitigation credits are intangible assets fixed to clearly defined conservation acres; tangible property
- Eco-assets are subject to common natural resource development and market considerations.
- Landowners *deserve to know* about these largely unknown land value / revenue components.
- Appraisers and real estate agents are the ones to tell 'em.

‘As for the future’…

EASI and its affiliates want to reach as many private landowners as possible over the next two years.

We are targeting landowners holding 1,000-10,000 acres where economies of scale come into play. Rangeland is high priority.

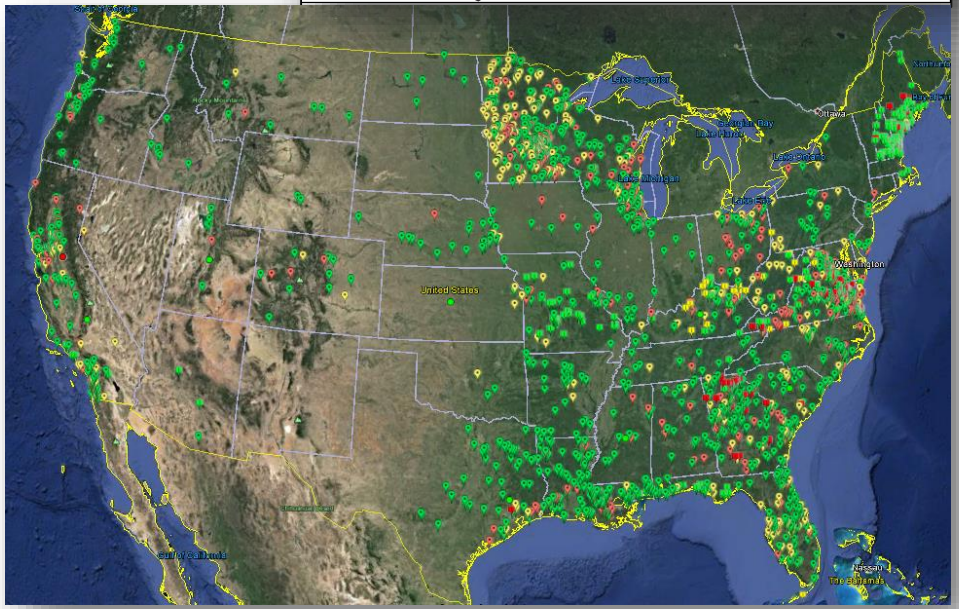
(Imagine how many $$ billions in land assets might be revealed!)



Ranch lands are preferred because they usually include diverse habitat types – from wetlands to woodlands and scrub-sage.

Timber lands will also benefit where the landowner is open to conservation-oriented revenue streams.

Properties in active eco-asset markets are ideal.



Getting the message out!

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Ecological Assets Boost Western Farm and Ranch Land Value

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By ASFMRA P

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Ecological Assets Boost Western Farm and Ranch Land Value

JANUARY 15, 2019 BY EINNEWS

LE

A potential mitigation bank near Olympia, Washington. Ecological assets contribute about $40,000 per acre in gross land value for mid-to-large sized Western farms an EASI confirmed today that ecological assets contribute an average of about $40,00 gross land value for mid-to-large sized Western farms and ranches."— William Cole

EIN PRESSWIRE

Ecological Assets Boost Western Farm and Ranch Land Value

Ecological assets contribute an average of about $40,000 per acre in gross land value for mid-to-large sized Western farms and ranches.

A potential mitigation bank near Olympia, Washington.

SAN FRANCISCO, CALIFORNIA, UNITED STATES, January 15, 2019 /EINPresswire.com/ -- San Francisco (EASI) – Eco-Asset Solutions and Innovations (EASI) confirmed today that ecological assets contribute an average of about $40,000 per acre in gross land value for mid-to-large sized farms and ranches in the Western region, according to William Coleman, EASI's founder and CEO.

The company has just completed its 11th eco-asset value study in the past two years. "People are surprised to learn how much value lies in land-based ecological assets," said Coleman. "They can't imagine that that tens of thousands of dollars in per-acre value might have gone unseen for so long."

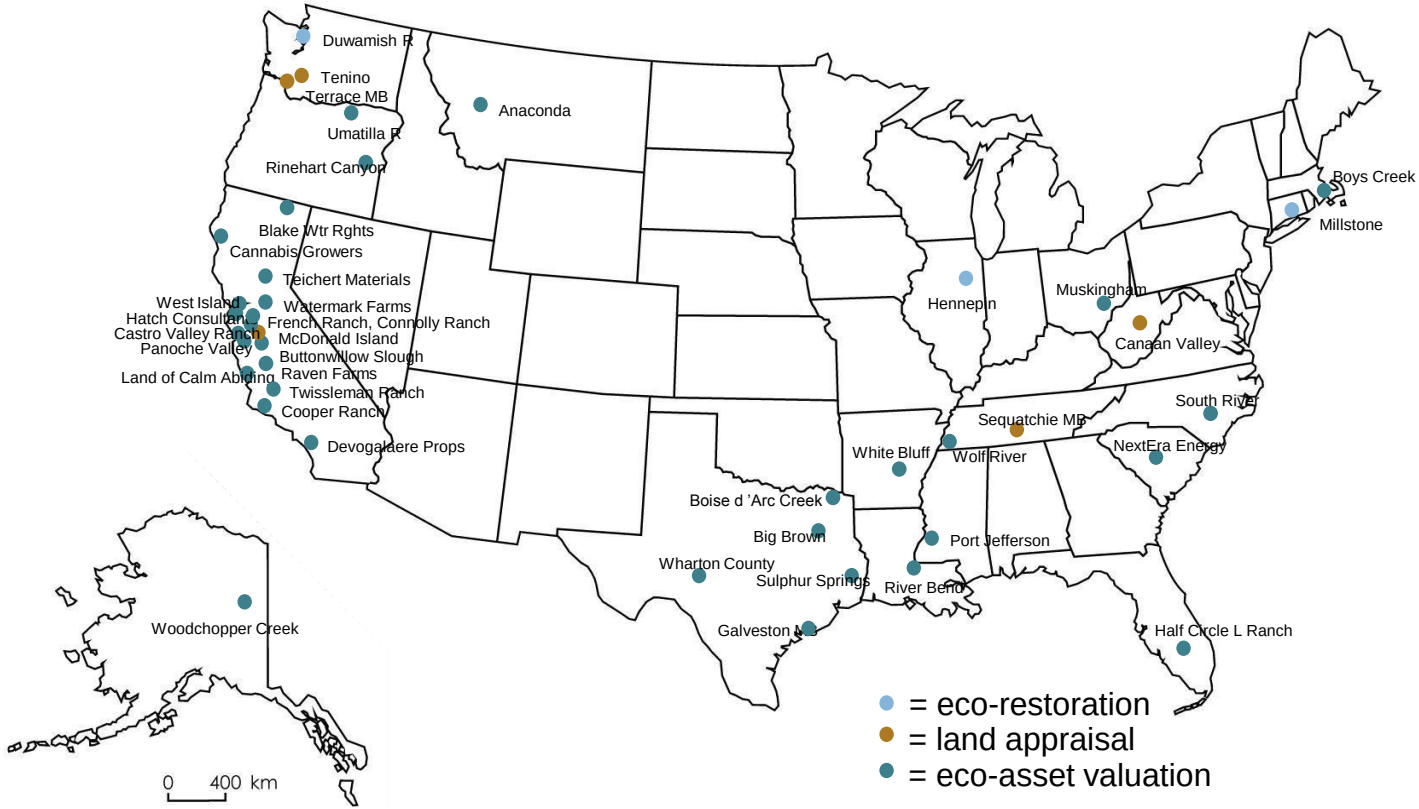
About Eco-Assets

> EASI confirmed today that ecological assets contribute

Ecological assets, eco-assets for short, include compensatory mitigation credits for protection of wetlands and streams, rare species and habitats, for prevention of nutrient runoff, and for forest and soil carbon

EASI has been leading the way. Find out more on the Web!

We seek landowners, real estate agents, appraisers and investors who want to discover the value of land-based ecological assets.



For more information:

info@easillc.com
415-706-6154

EASI

Eco-Asset Solutions & Innovations

‘Real value from investing in nature’