



# Stonerose Interpretive Center and Eocene Fossil Site:

an integrative model at the crossroads of research,  
public outreach and community involvement

Michael Sternberg, Stonerose Interpretive Center, Republic WA

S. Bruce Archibald, Simon Fraser University, Vancouver BC

Melanie L. DeVore, Georgia College & State University, Milledgeville GA

Kathleen B. Pigg, Arizona State University, Tempe AZ



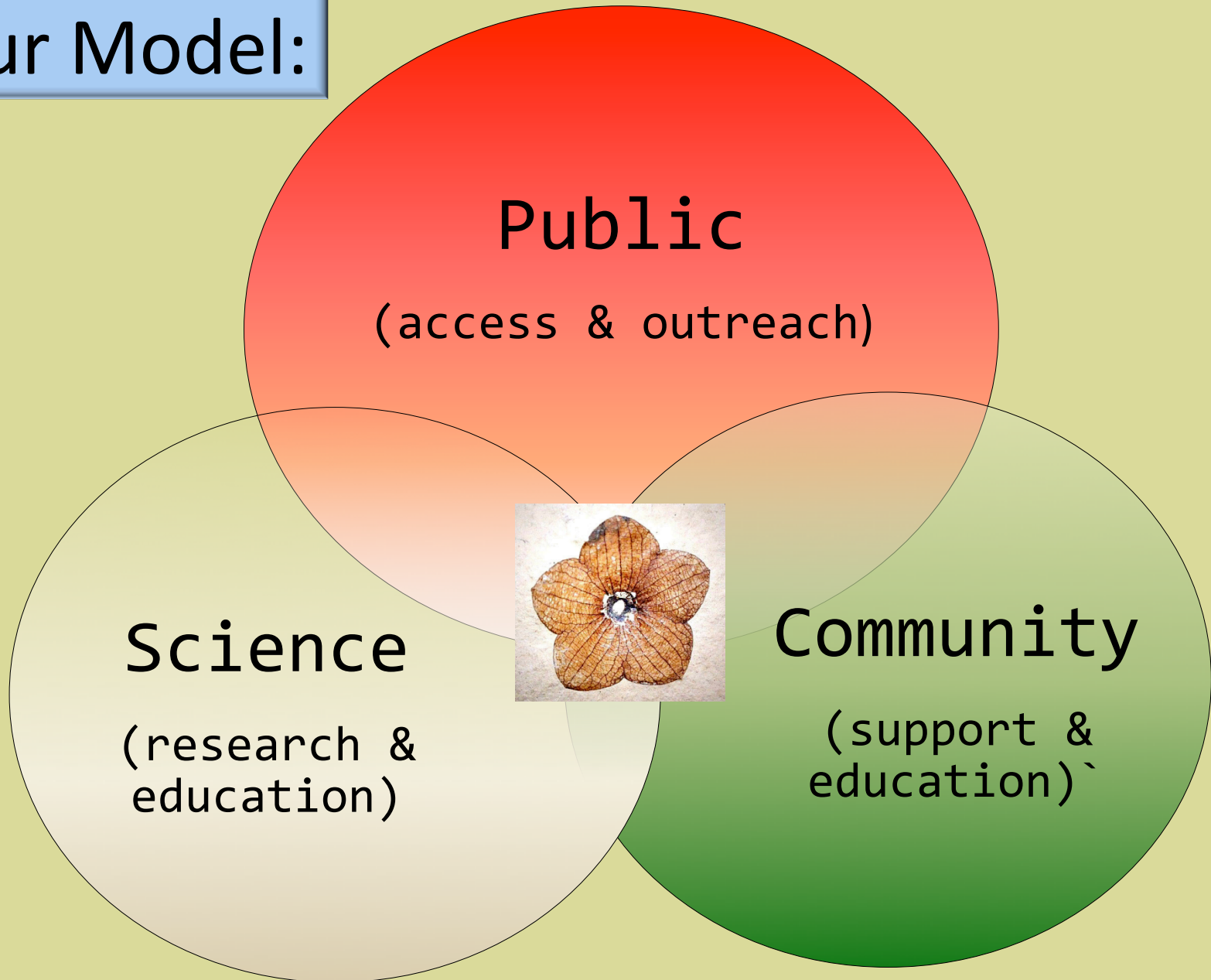
## STONEROSE INTERPRETIVE CENTER MISSION STATEMENT

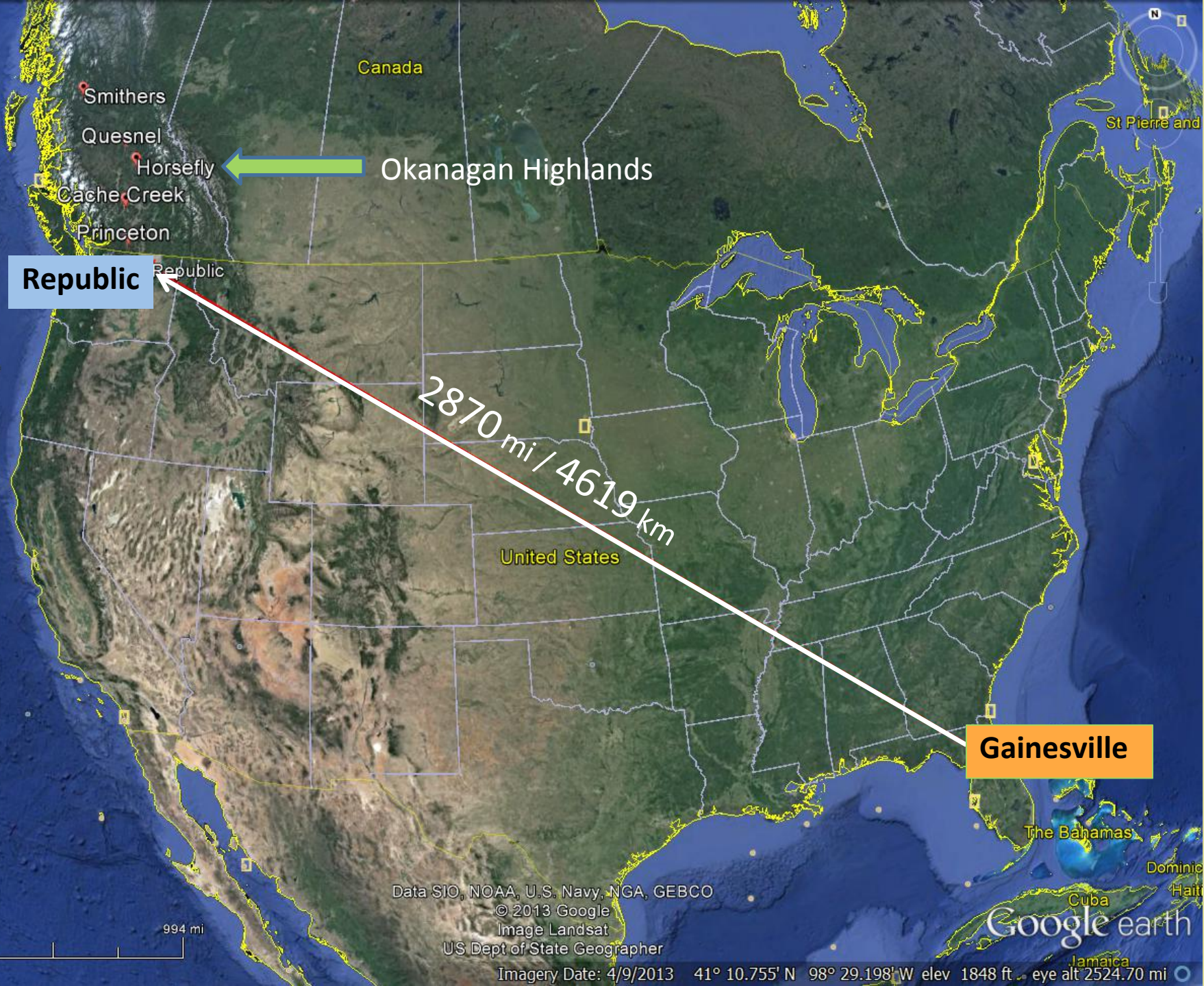
It is the Mission of the Stonerose Interpretive Center to promote both **public** and **scientific** interest concerning paleo-environments and geological features in Ferry County and immediately surrounding areas.

This Mission will be accomplished by **collecting, preserving, exhibiting** and **interpreting** appropriate natural objects, by **research, outreach** and by exchange of information with other educational and research institutions.

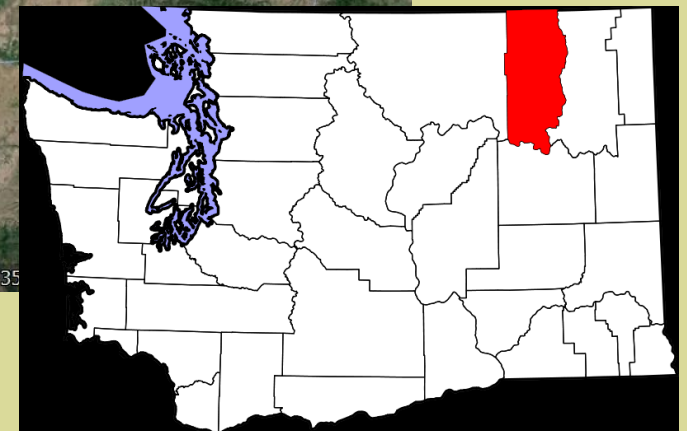
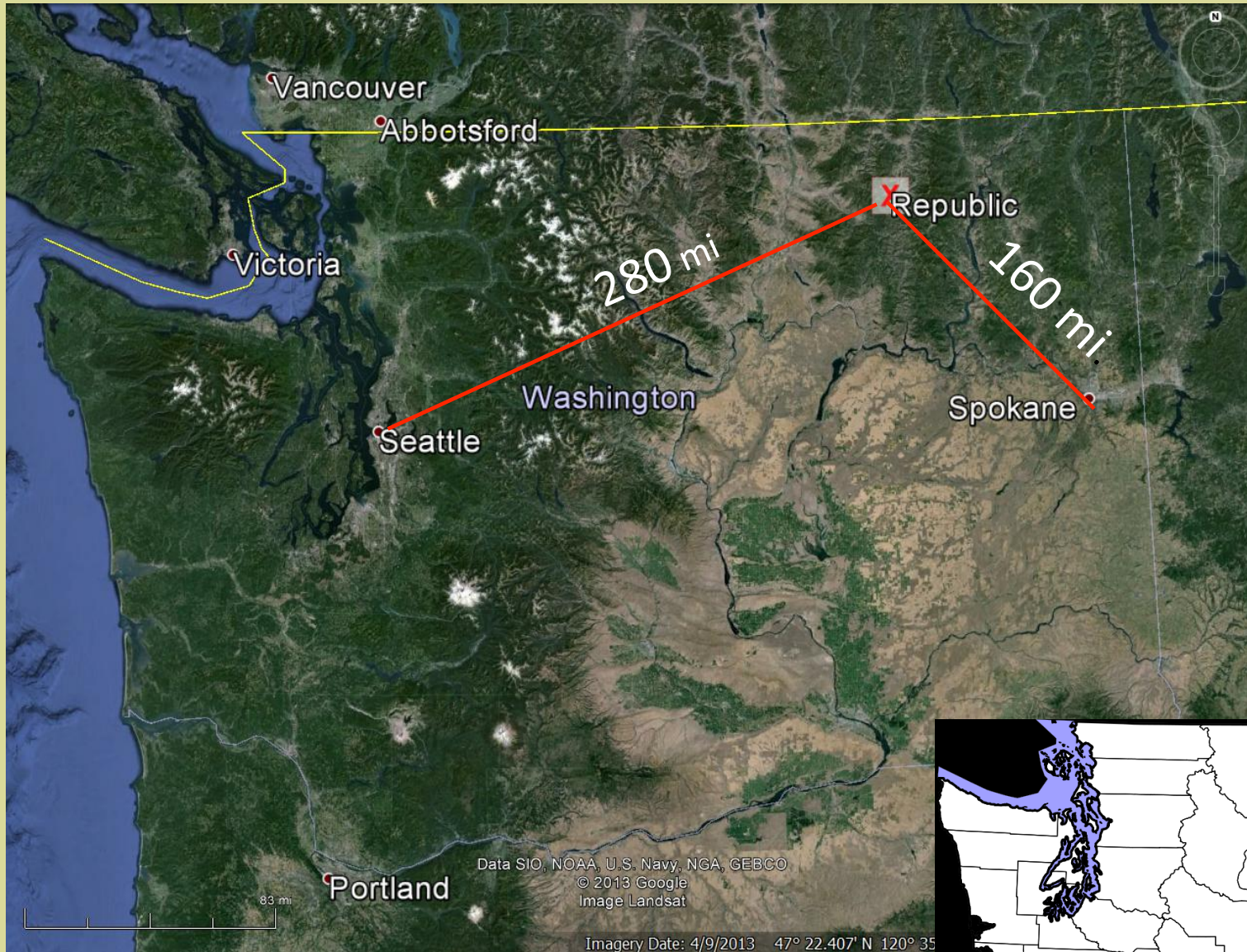


# Our Model:









Stonerose is remote





# Ferry County

Twice the size of Rhode Island

Population – 7,700

Area – 2,257 sq.mi

Republic is the only incorporated town

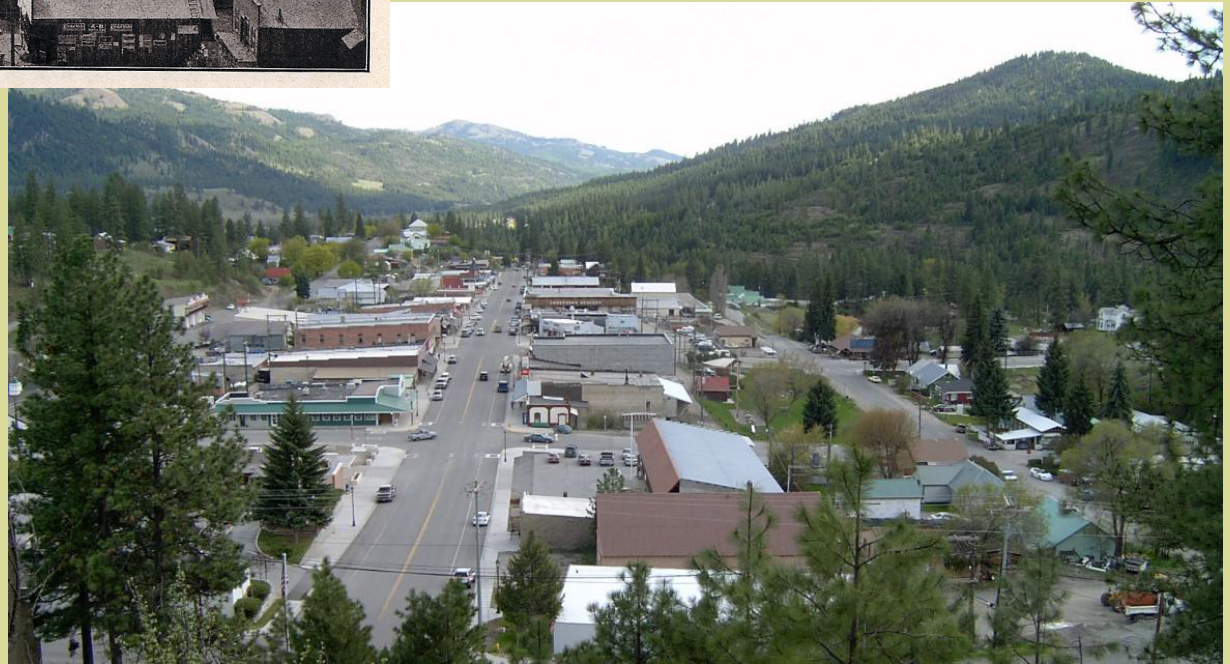






Republic (1910)  
Population: 999


Republic (2010)  
Population: 1,077



The Republic Flora has been studied for over a century, but was not considered very significant for most of that time.

- 1910 J. Umpleby\*
- 1929 E.W. Berry\*
- 1935-40 R.W. Brown
- 1960 Wolfe & Barghoorn (Eocene)

Until....

-  1977 Wehr & Johnson (Road Trip)

\*initially considered part of the Miocene Latah Formation



Wesley C. Wehr, Affiliate Curator of  
Paleobotany, Burke Museum, WA  
(1929-2004)



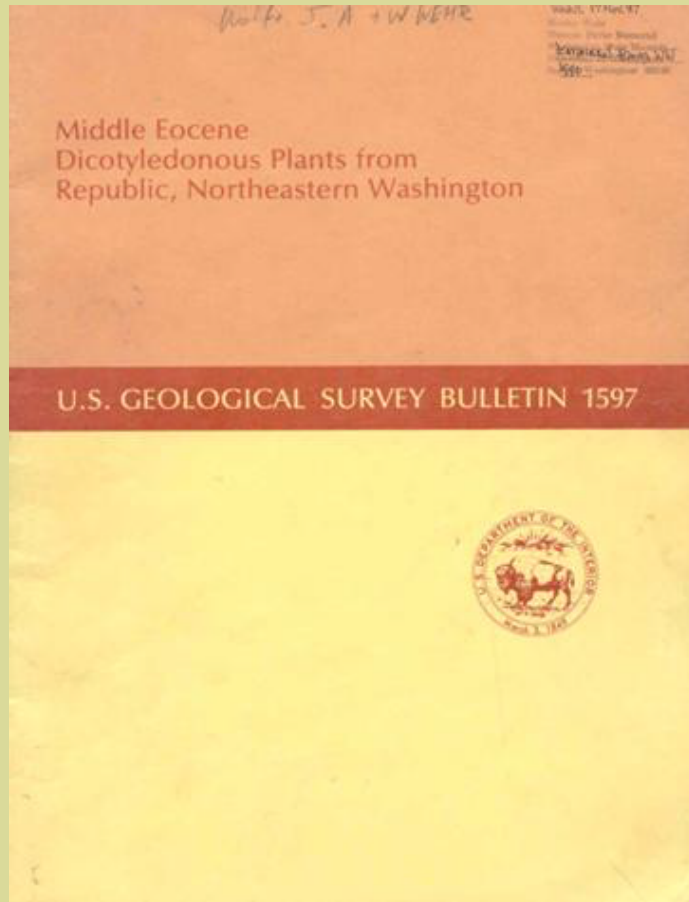
Kirk Johnson, Sant Director of  
the National Museum of  
Natural History



Teenaged Kirk just  
got his license so  
they took a road trip



# Wolfe & Wehr 1987 Republic Monograph



Identified 18 previously known flowering plant taxa,  
Named 6 new species, and 6 new genera  
Provided the foundation for studying the Republic flora

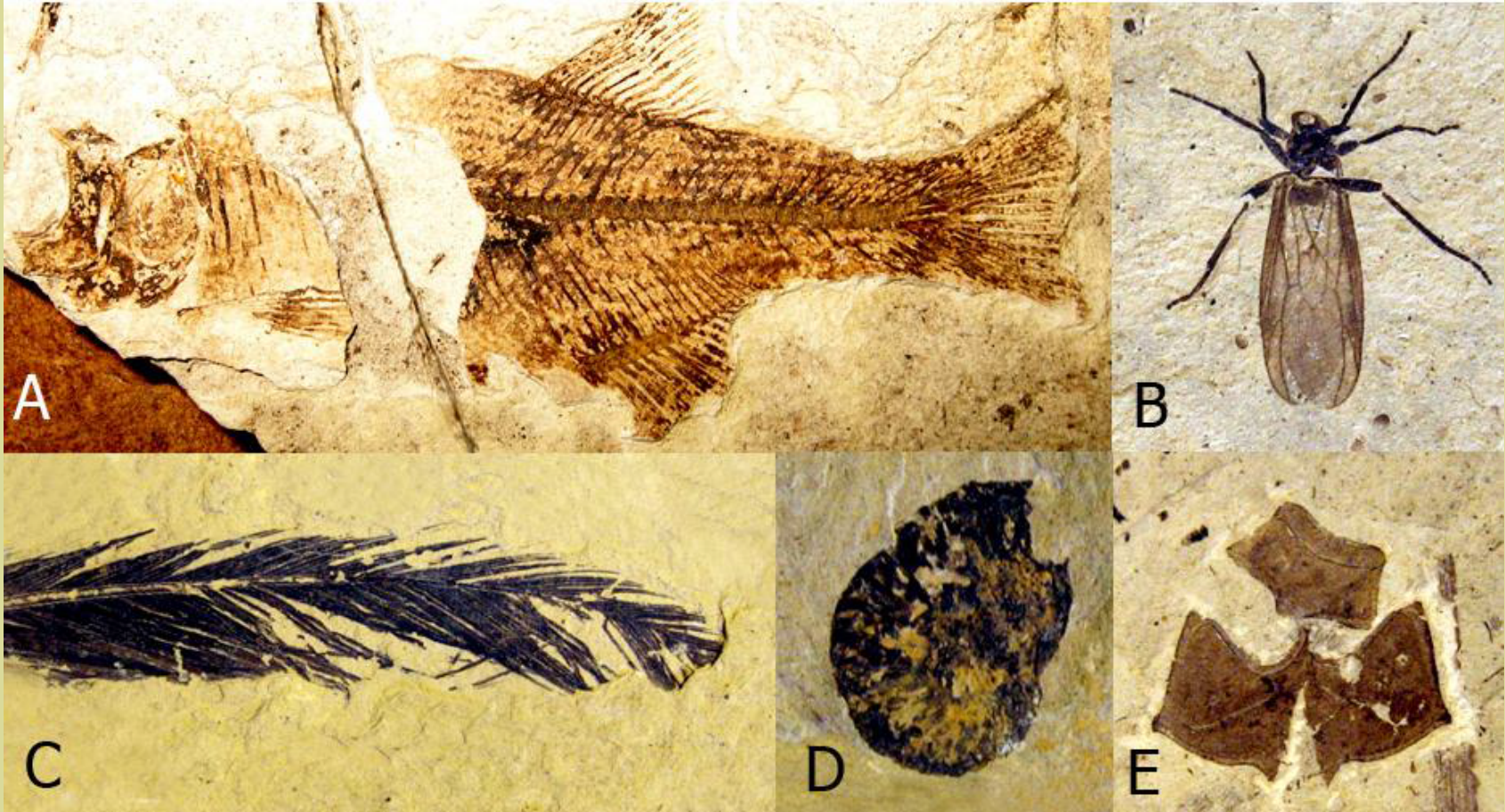


# The Republic flora provides a rare glimpse at early diversification of the Rosaceae and other temperate genera





# The Republic Fauna



Fish (A), Insects (B), Bird feather (C), Snail (D), Crayfish (E)





The quality of preservation is not only aesthetically pleasing but also enables detailed analysis by researchers







Stonerose Interpretive Center is housed in the historic Whittaker-Fletcher Building (1911)

1994 – a 600 sq ft addition was built for the Interpretive Center. The Ferry County Historical Society is housed in the original building.







The Stonerose Collections have over 8000 accessioned specimens. Ongoing collecting by the public provides new material of research and display quality, as well as a source for education and outreach



# Researchers



Melanie DeVore GCSU



Bruce Archibald SFU



Kathleen Pigg  
ASU

Finley Bryan  
USDA, Raleigh



Kirk Johnson DMNS



Steve Manchester FLMNH



Conrad Labandeira NMNH



# The Stonerose Experience for the Public



The Center displays and interprets illustrative examples of the diverse flora and fauna found at the site



# Customized Database Program Developed by Jan Hartford

Build 15.03

# Stonerose STRATA

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Stonerose Interpretive Center

## Main Menu



- ☐ **Contact Management**
- ☐ **Fossil Management**
- ☐ **Glossary**
- ☐ **Kiosk**
- ☐ **Publications**
- ☐ **Reports**
- ☐ **Utilities**
- ☐ **Exit**





# All visitors sign in at our Strata™ Kiosk

Stonerose Fossil Site

Welcome !

Saturday, February 08, 2014

Diggers

Click here to Register

Non-Diggers

Click to Sign Guestbook

Each household, please sign in separately

\*\*\* This helps us acquire future funding \*\*\*

Comments  
and  
Suggestions

We heard about Stonerose from

Prior visit

Family/Friends

Local Business or Tourist Info

Out of town Business or Tourist Info

School

Organization

Newspaper

Magazine

Internet

TV

Other

Sign for Stonerose

Map

Stonerose Booth at Event

Stonerose Presentation to Group

More Specific, Please

Burke Museum

MONA or MAC Spokane

NPA -NW Paleontological Assoc

Other Organization

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Besides getting the visitor's name and contact information, we also gather valuable demographic data

# Stonerose STRATA.®

<b>Stonerose STRATA</b> <sup>®</sup>		Add Independent Email		Michael Sternberg		Search Address		Search name/business		Remove Filter		<b>View/Update Contact Record</b>							
												Create New Contact		Help		Exit			
Contact Info		Fossils		Visits		Contact History		Donations		Entire Family History		Volunteer History		Family		Link this Contact to a Different Family		Create Family for this Contact	

If this is NOT a valid mailing name & address, FIX IT, or change Contact Status to I, N, or X												Family		1319766348		Edit member/contact type on Family Tab			
<b>Edit Names</b>		Contact ID		3992		<input checked="" type="checkbox"/>		Contact Status		C - Current		ContactType		F					
		Name1		MICHAEL		STERNBERG		StatusReason		Current		MemberType		Life/Honorary					
		Name2						Status Note				Expires				LifeSince		1998	
		Business /School /Group										:) RulesNote							
<b>USPS Address Guidelines</b>		Addr1		156 BARRETT CREEK RD				Contact Note				:) RulesYear							
		Addr2																	
		City /State/ Zip		REPUBLIC WA		99166													
		CountryCode		US															
		USPhone1				Ext or Type													
		USPhone2				Ext or Type													
		IntlPhone																	
		Email		msternberg@hughes.net															
		Website																	

Record summary for this contact												<b>Create Visit Record</b> for Educational Group or Outreach	
Identifier Recs		0		Other Family		2		Staff		<input type="checkbox"/>			
Loanee Recs		0		Visit Recs		6		Prospective Donor		<input type="checkbox"/>		Stonerose Research Affiliate <input type="checkbox"/> Non-Stonerose Researcher <input type="checkbox"/> FieldOfInterest <input type="text"/>	
Accessioner Recs		0		Donation Recs		3		Government Official		<input type="checkbox"/>			
Fossil Donor Recs		0		All History		14		Organization or Business		<input type="checkbox"/>			
Addr ArchiveRecs		1		Finder Recs		117							

Merge other contact to this one		Delete This Contact?	
---------------------------------	--	----------------------	--



# Accessioning and curating database module

**Stonerose STRATA®**

Show Photos

Hide Photos

Help

Default Filter/Seq

Filter By

Add Accession

Maintain Lookups

Edit This Fossil

Enter New Contact

View Deaccessions

Deaccession This Fossil

Go To Loan

Exit

**View Fossils**

Non-Stonerose Donated Fossil Info

Donor

Outside Locale

Outside Age

Collection

SubCollection

Housed At

Accession #

Acc Date

Acc By

Accession Note

Loaned to

Fossil Status

\*FindDate

\*Locality

Finder(s)

Fossil ID

Type

Storage

Cab/Dr

View Cpt

Cpt Acc #

Cpt Housed

1370

Basement

JAN HARTFORD

10/11/1995

STAFF 1995

Small but beautiful

Identification(s)

Help

\* ID By

\*ID/Log Date

Ident Note

\* Maj Category

Informal ID

Organ

Certainty

Found Republic

Extinct

WES WEHR

10/31/1995

DIC

Sassafras hesperia

Leaf

☒

☒

Taxonomy Link

Enter Optional Search text then "Search Taxonomy"

Search Taxonomy

Scientific Authority for taxonomy change

Prior Name

Original Genus Authority

Current Genus Authority

Original Species Authority

Current Species Authority

Occurance at Republic Discredited

Reason

Authority

New Taxon transferred to

Common

Phylum

Subphylum

Class

SubClass

Superorder

Order

Suborder

Superfam

Family

Subfamily

Tribe

Genus

Form

Species

hesperia

Sassafras hesperia

Angiospermae

Magnoliidae

Laurales

Lauraceae

Sassafras

hesperia

Publications related to this taxonomy

In Library

Title

Author

Pub Date

Figure

Record: 1 of 1

Record: 1 of 1



So, what do we  
offer the Public?

# BOOT HILL

## Stonerose's primary public collecting area



Stonerose owns an additional city block for future development



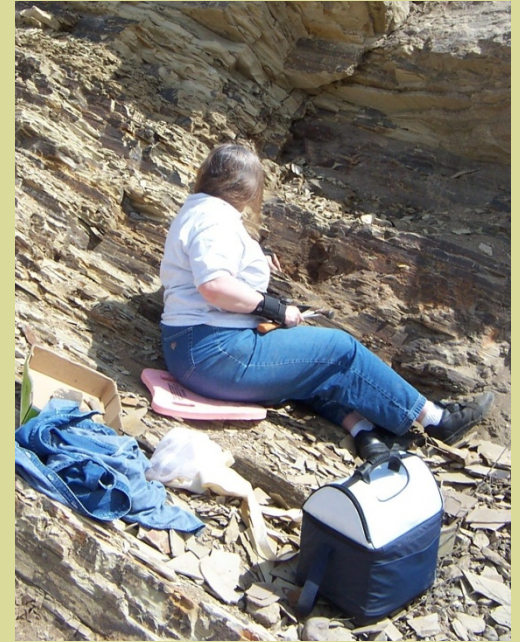


The BOOT HILL Site is conveniently located just 3 blocks from the Interpretive Center





After receiving an orientation talk, Stonerose provides public access to the fossil resource. Diggers are allowed to keep up to 3 fossils per day.



# 2013 – 6,511 Visitors



## Foreign Visitors:

Australia - 10

Canada - 262

Finland – 3

France – 2

Japan – 10

Mexico – 2

Russia – 4

Switzerland 1

Taiwan – 1

United Kingdom - 9



# Stonerose also provides

## EDUCATION OUTREACH PROGRAMS

- School Group visits on site
- Travel to present at Schools
- Dino Day at the Burke Museum
- Ferry County Fair
- Prospector Day Parade
- National Fossil Day
- Special Events

In 2013, Stonerose had 21 school groups : 846 students and adults had the thrill of discovery







Oz found a beautiful *Crataegus* fossil which Stonerose retained for further study

These young students proudly display their finds, which they were allowed to keep



# Researchers who study Republic fossils participate in outreach

Dr. DeVore telling the story of plants in the Eocene and the emergence of the Rosaceae as a diverse plant community







Dr. Archibald captivates a local school group with stories of the ancient past – Climate and the diversity of insects

How cool is it to hear a real scientist talk about their research?



...and provide educational materials for the public

## FOSSIL PLANTS FROM REPUBLIC: A GUIDEBOOK



KATHLEEN B. PIGG, MELANIE L. DEVORE  
& KARL E. VOLKMAN

STONEROSE INTERPRETIVE CENTER  
REPUBLIC, WASHINGTON

### ALDER \* BETULACEAE -THE BIRCH FAMILY

*Alnus parvifolia* (Berry) Wolfe & Wehr

Finder: Jon Koger



SIZE RANGE  
2-10 cm long

L/W RATIO 2:1

#### OCCURRENCE

The most common  
dicot leaf at Republic,  
found as partials, top  
or bottom halves.

#### MAJOR IDENTIFYING FEATURES

Leaves elliptic; Apex round-pointed,  
base acute, narrowly asymmetric.

Midvein thin, 2<sup>nd</sup> veins straight,  
extending to margin; 3<sup>rd</sup> order  
veins perpendicular to 2<sup>nd</sup>s.

Margin undulate, often  
serrate, teeth small,  
irregular, 1-2 groups,  
can be far apart.



#### DETAIL

Straight 2<sup>nd</sup> veins  
3<sup>rd</sup>ies at right angles  
sometimes branching



simple, irregular  
teeth

Technical details: Wolfe & Wehr 1987

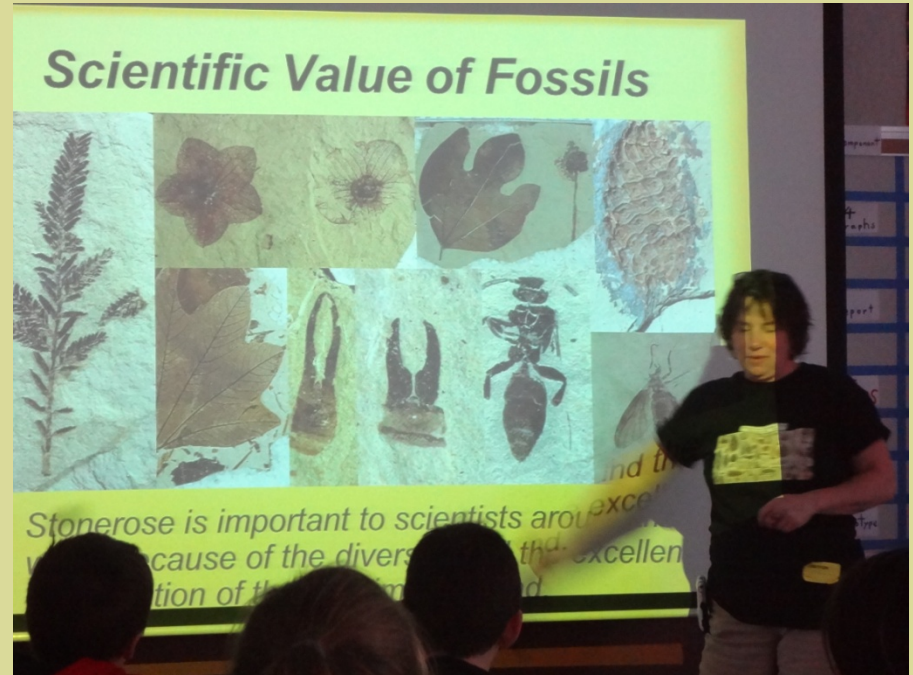


# School Outreach Programs

Staff travel to schools across the State during the 'off' season



Hands On learning keeps the students focused





# Stonerose goes to Dino Day at the Burke Museum in March

Where 1,600 -1,900 children have an opportunity to find their fossil





# Prospectors Day Parade in June celebrates Republic's mining past.



Future paleo-entomologists





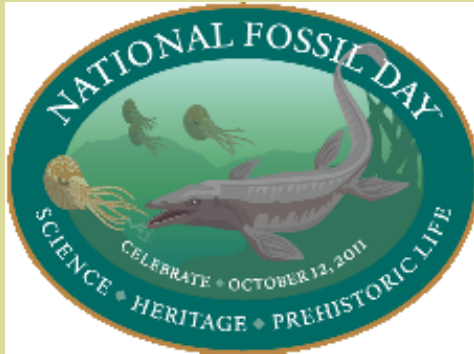
# The Ferry County Fair on the last weekend in August



Opportunities for discovery  
are possible at the Ferry  
County Fair



# National Fossil Day has been a remarkable end to our season







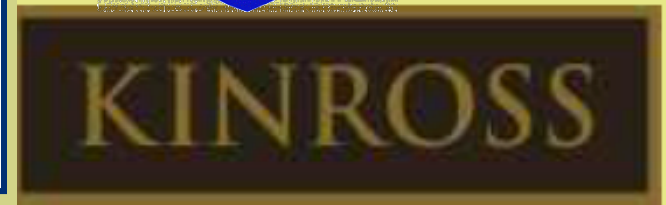
Students illustrated a geologic timeline on the street outside Stonerose



The Cambrian was particularly well done



# Community Support and Education



More than 100 papers and a major monograph have used Stonerose fossils as data

***CORYLUS, CARPINUS, AND PALAEOCARPINUS (BETULACEAE) FROM THE MIDDLE EOCENE KLONDIKE MOUNTAIN AND ALLENBY FORMATIONS OF NORTHWESTERN NORTH AMERICA***

Kathleen B. Pigg,<sup>1</sup> Steven R. Manchester, and Wesley C. Wehr

**Paleobiology of middle Eocene plant-insect associations from the Pacific Northwest:  
A preliminary report**

**Conrad C. Labandeira**

*Department of Paleobiology, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560, U.S.A. and Department of Entomology, University of Maryland, College Park, MD 20742, U.S.A.*

**NEW DIVERSITY AMONG THE TROCHODENDRACEAE FROM THE EARLY/MIDDLE EOCENE OKANOGAN HIGHLANDS OF BRITISH COLUMBIA, CANADA, AND NORTHEASTERN WASHINGTON STATE, UNITED STATES**

Kathleen B. Pigg,<sup>1</sup> Richard M. Dillhoff, Melanie L. DeVore, and Wesley C. Wehr<sup>2</sup>

**Early Eocene big headed flies (Diptera: Pipunculidae) from the Okanagan Highlands, western North America**

S. Bruce Archibald,<sup>1</sup> Christian Kehlmaier, Rolf W. Mathewes



And those Finder records I  
mentioned earlier...

# Finder Record



**View Fossils Found**

Go to Selected Fossil

Help

Exit

Contact Info

Fossils

Visits

Contact History

Donations

Entire Family History

VolunteerHistory

Family

<b>Contact ID</b>	3992		<b>Family</b>	1319766348
<b>Name1</b>	MICHAEL	STERNBERG	<b>Contact Status</b>	C
<b>Name2</b>			<b>StatusReason</b>	Current
<b>Business /School /Group</b>			<b>MemberType</b>	Life/Honorary
			<b>Expires</b>	
			<b>LifeSince</b>	1998

Fossil	FindDate	Locality	InformalID	Family	Genus	Species	Common
SR 99-07-20 A&B	9/15/1997	B4131		Vespidae			hornets, Yellow jackets, etc...
SR 99-15-12	9/4/1998	B4131	seed mass, requested for study by Kat	Nymphaeaceae			Water lily Family
SR 01-03-05	5/1/2001	B4131	with DT15 & DT35	Rosaceae			Rose Family
SR 01-04-32	5/1/2001	B4131		Ginkgoaceae	Ginkgo	biloba	Ginkgo
SR 01-03-05	5/1/2001	B4131	with DT15 & DT35				Insect Activity
SR 07-60-01	5/1/2001	B4131	with moth bites?	Lauraceae	Sassafras	hesperia	Sassafras hesperia
SR 07-60-01	5/1/2001	B4131	Sassafras hesperia with DT04				Insect Activity
SR 07-18-07	4/29/2006	B4131	grouping of seeds	Nymphaeaceae			Water lily Family
SR 07-18-09	4/29/2006	B4131		Rosaceae			Rose Family
SR 07-18-10 A&B	4/29/2006	B4131		Rosaceae	Crataegus		Hawthorns
SR 06-60-11 A&B	4/29/2006	B4131					Hoppers
SR 07-18-08 A&B	4/29/2006	B4131					Unidentified plant
SR UI 09-94-77.3 A&B	4/15/2007	A0307	Plecia	Bibionidae	Plecia		
SR UI 09-94-78.2	4/15/2007	A0307	Plecia	Bibionidae	Plecia		
SR UI 09-94-78.6	4/15/2007	A0307	Trichoptera				Caddisflies
SR UI 09-94-78.4	4/15/2007	A0307	Auchenorrhyncha				Hoppers
SR UI 09-94-77.2	4/15/2007	A0307	Coleoptera				Beetles
SR UI 09-94-77.7	4/15/2007	A0307	Plecia	Bibionidae	Plecia		
SR UI 09-94-78.1	4/15/2007	A0307	Auchenorrhyncha				Hoppers
SR UI 09-94-78.5	4/15/2007	A0307	Auchenorrhyncha				Hoppers
SR UI 09-94-77.4	4/15/2007	A0307	insect				Unknown Insect
SR UI 09-94-78.8	4/15/2007	A0307	Auchenorrhyncha				Hoppers
SR UI 09-94-77.6	4/15/2007	A0307	insect				Unknown Insect
SR UI 09-94-78.3	4/15/2007	A0307	Dermaptera				Earwigs
SR UI 09-94-78.7	4/15/2007	A0307	Coleoptera				Beetles
SR UI 09-94-77.5	4/15/2007	A0307	Plecia	Bibionidae	Plecia		
SR UI 09-94-77.1	4/15/2007	A0307	Auchenorrhyncha				Hoppers
SR 08-09-05	4/20/2007	B4131		Cercidiphyllaceae	Joffrea		Joffrea
SR 08-40-26	4/20/2007	B4131		Rosaceae			Rose Family



Stonerose deeply values the contributions our finders make to the continuing research. Often new genera are named by the scientists using the finder's name in the new etymology.



*Oemleria janhartfordae* - Rosaceae



And finally, a big **Thank You** to Madilane Perry, Lisa Barksdale and Catherine Brown for creating and developing Stonerose Interpretive Center





Fossils, Friends and truly Great Beer! Y'all come  
see us now, you hear.

