Streamlining Reclamation Monitoring in the Sagebrush Steppe

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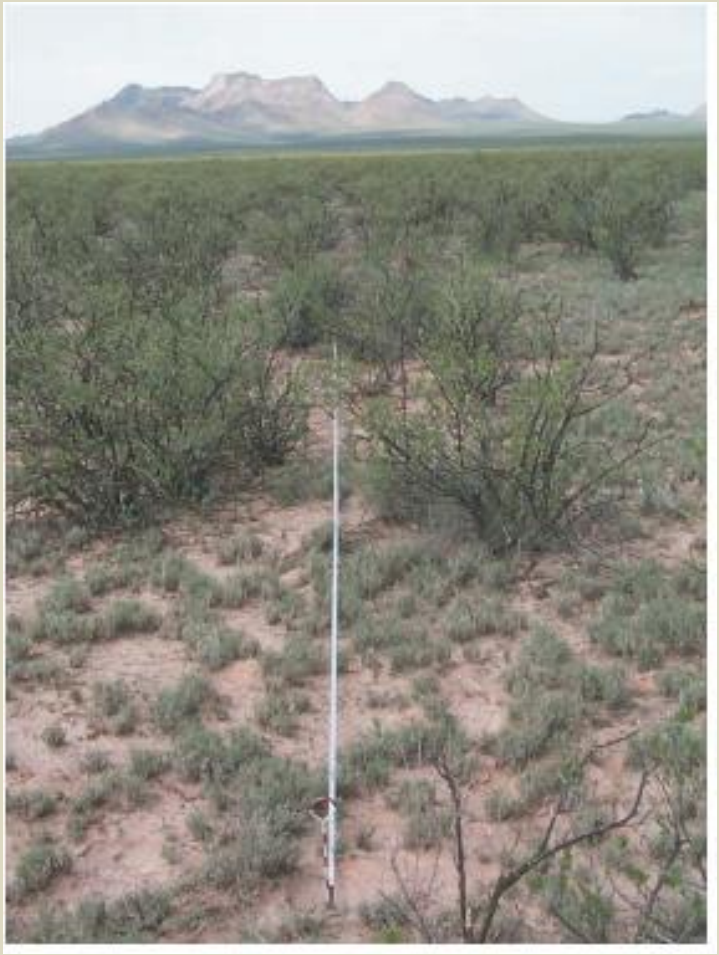
Line Point Intercept



Volume I: Quick Start Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems 2009

http://jornada.nmsu.edu/files/Quick_Start.pdf

Volume I: Quick Start Monitoring Manual For Grassland, Shrubland, and Savanna Ecosystems

Line-point Intercept Data Form

Page _____ of _____ Shaded cells for calculations

Plot: _____ Line #: _____ Observer: _____ Recorder: _____

Direction: _____ Date: _____ Intercept (Point) Spacing Interval = _____ cm (____ in)

Pt.	Top layer	Lower layers Code 1	Code 2	Code 3	Soil surface	Pt.	Top layer	Lower layers Code 1	Code 2	Code 3	Soil surface
1						26					
2						27					
3						28					
4						29					
5						30					
6						31					
7						32					
8						33					
9						34					
10						35					
11						36					
12						37					
13						38					
14						39					
15						40					
16						41					
17						42					
18						43					
19						44					
20						45					
21						46					
22						47					
23						48					
24						49					
25						50					

% foliar cover = ____ top layer pts (1st col) x 2 =____ %

% bare ground* = ____ pts (w/NONE over S) x 2 =____ %

% basal cover = ____ plant base pts (last col) x 2 = ____ %

Top layer codes: Species code, common name, or NONE (no cover).

Lower layers codes: Species code, common name, L (herbaceous litter), WL (woody litter, >5 mm (~1/4 in) diameter).

Unknown Species Codes:

AF# = annual forb
PF# = perennial forb
AG# = annual graminoid
PG# = perennial graminoid
SH# = shrub
TR# = tree

Soil Surface (do not use litter):

Species Code (for basal intercept)
R = rock fragment (>5 mm (~1/4 in) diameter)
BR = bedrock, M = moss
LC = visible biotic crust on soil
S = soil without any other soil surface code
EL = embedded litter (see page 10)
D = duff

Bare ground occurs ONLY when Top layer = NONE, Lower layers are empty (no L), and Soil surface = S.

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http://jornada.nmsu.edu/files/Quick_Start.pdf

Point Intercept (PI) is a labor-intensive method. In countries where labor costs are high, the continued use of PI for landscape-scale assessments is impractical (West 1999) contributing to inadequate sampling, high Type-II error risk, and large data variance when data are collected by different people in different years (Vittoz and Guisan 2007) or through periods of phenological change. Cagney et al. (2011)

Sample Point

- SamplePoint allows accuracy comparable with the most accurate field-methods for ground-cover measurements, and ease of use that allows rapid measurements from image data. We recommend SamplePoint for calibrating the threshold-detection level of image-analysis software or for making measurements of percent occurrence from digital images.

- http://www.ncaur.usda.gov/research/publications/publications.htm?seq_no_115=184267

SamplePoint
Image First, then adjust image parameters!
DataBase
Cur Image
E:\Red Rim 3\P6120063.tif
Next Image
Begin
Comment
Rotate
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Lighten
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>> Cont
<< Cont
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Train
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Block Zoom
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point
Exit
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1
Refresh
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Grass
Forb
Shrub
Cactus
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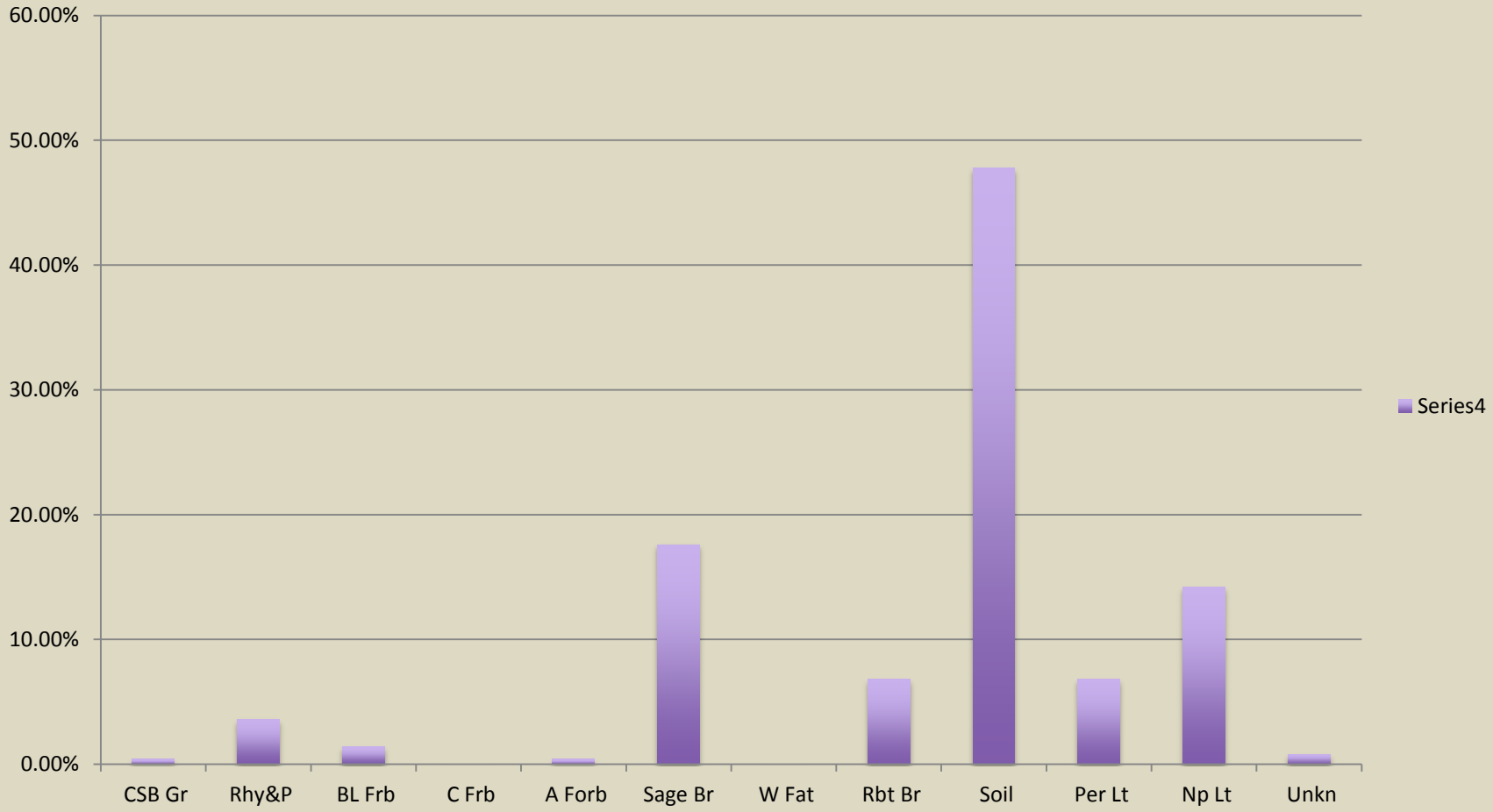
Time

- 100 meter transect:
- PI completed in 167 minutes.
- PI data transcription from paper to spreadsheet (separate from transect reading time), took an average of 110 min.
- Image acquisition took 20 min.
- SP image classification averaged 62 minutes.
- Average time for each method: Full Analysis
- 296 minutes PI
- 108 for SP

Cagney et al. 2011

Cover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A Forb
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Rbt Br
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Series4

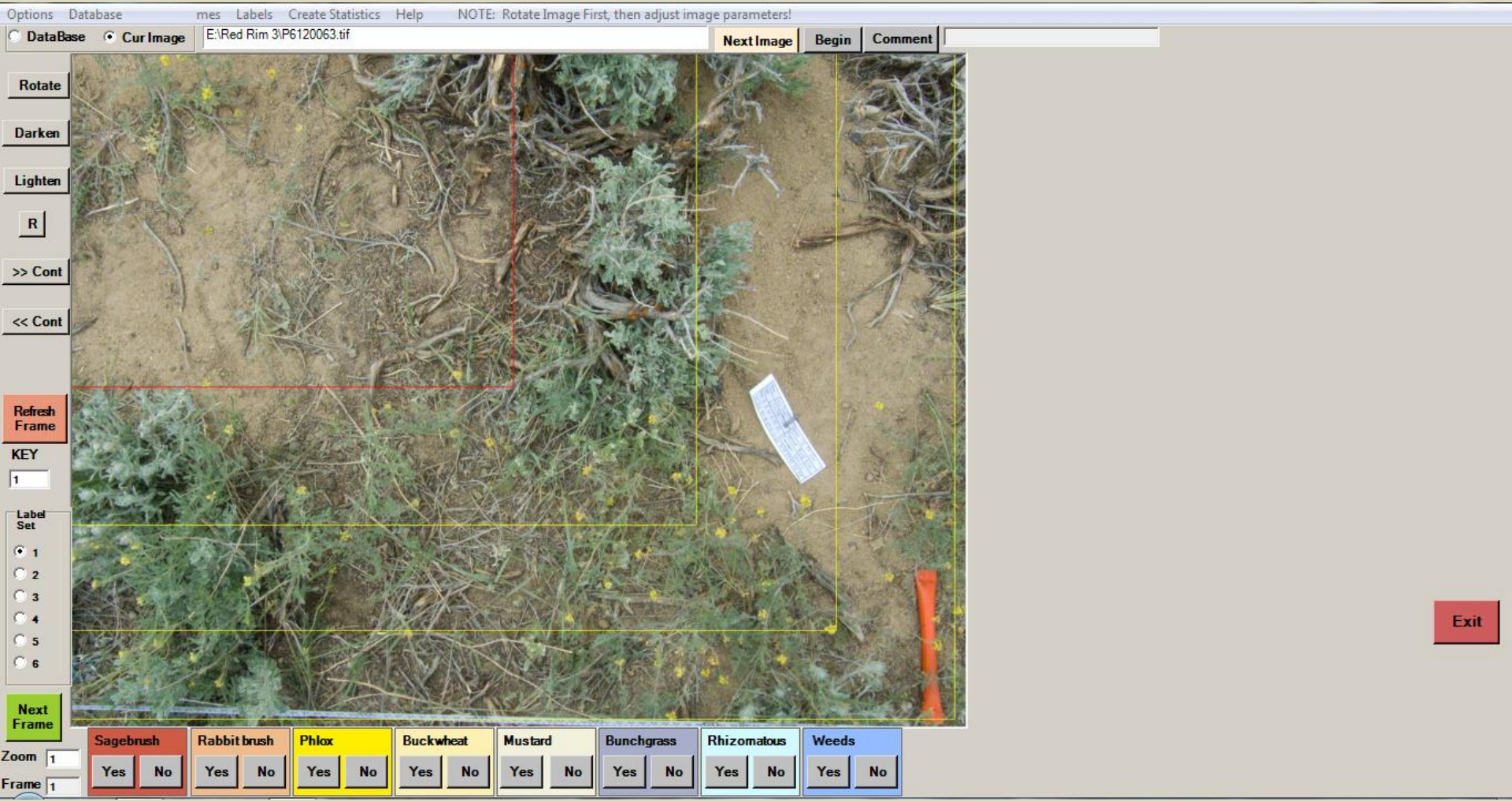
SampleFreq

Software to measure vegetation frequency from digital images for ecological monitoring

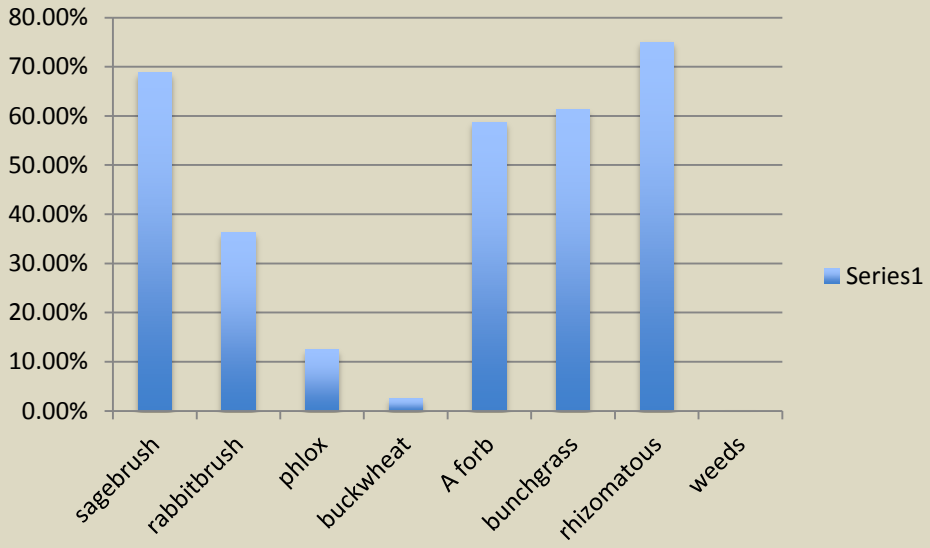
Developed by: Robert Berryman, Terry Booth, Sam Cox

http://www.samplepoint.org/samplefreq.html

SampleFreq Screen



Frequency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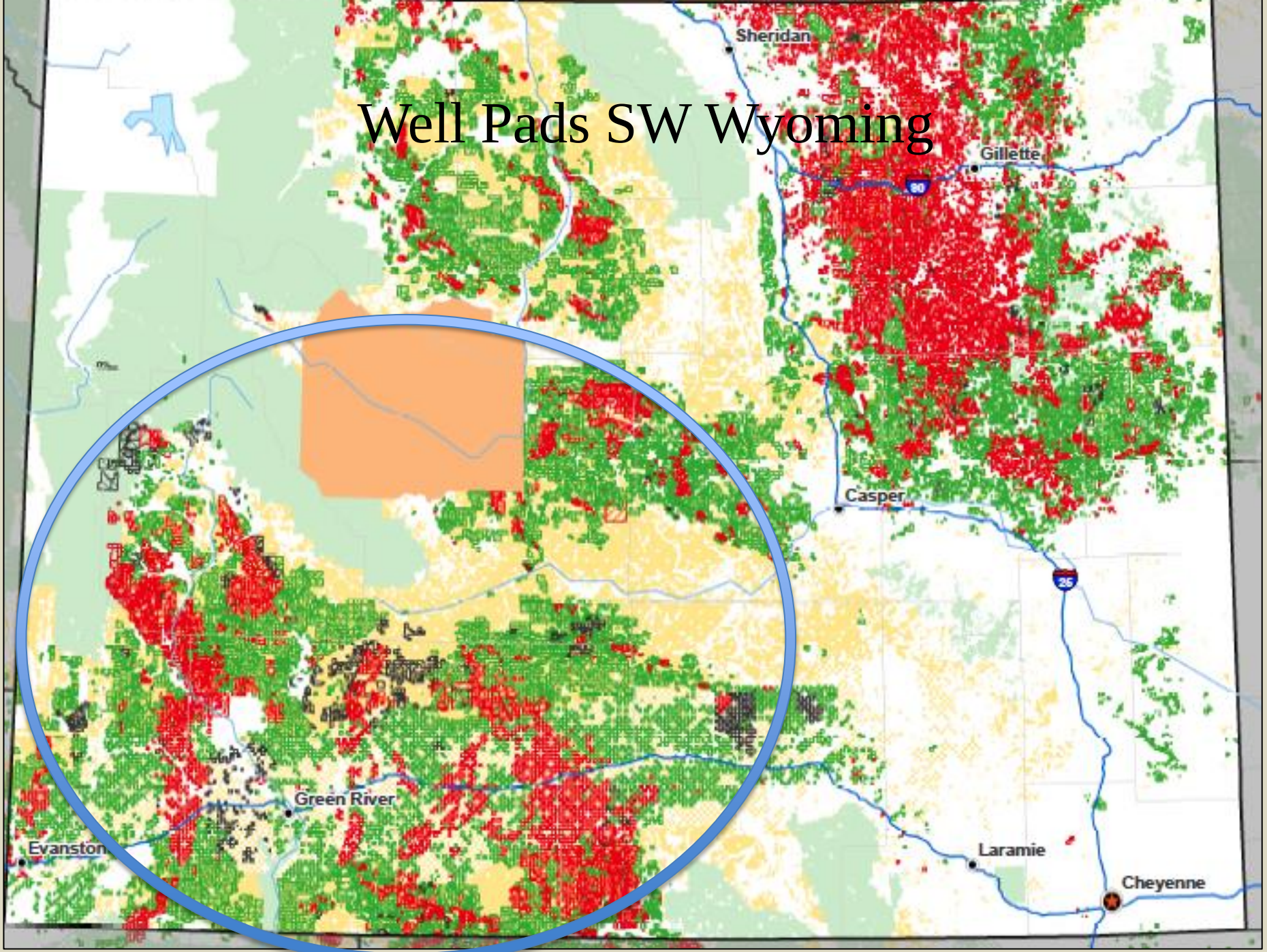
sagebrush
rabbitbrush
phlox
buckwheat
A forb
bunchgrass
rhizomatous
weeds
Series1



Well Pads SW Wyoming

07/13/2010

Timing

- Essential to capture forbs
- Many sites to collect data from
- SamplePoint advantage 20 minutes per transect (20 photos). 167 minutes Point Intercept
- Photos also used with SampleFreq
- Spend 40% time driving, 75 miles per day @ 30mph
- Still collect data from 18 sites with SamplePoint
- 2.7 transects using Point intercept

Long Term

06/05/2012

Photo Points

- Can be taken from same location year
- They can be analyzed with SamplePoint & SampleFreq and compared to previous data.

Questions?