Project No. 13-700

STREBAND CLOUD: A TOOL FOR CONSERVATION PLANNERS

Picture of White River near Flippin, AR, by James Powers

U of A
DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

ANRC NPS Annual 319 Program Review Meeting, September 18, 2014

ACKNOWLEDGMENT

- Project Team- Dr. Mike Daniels, Mr. Nikhil Thomas, and Mr. Ben Hancock

- **Scientific Research Advisory (SRC)**:

Mr. Arnold Hameister (Arkansas Forestry Commission),
Mr. Caroll Guffey (University of Arkansas at Monticello),
Dr. Hal Liechty (University of Arkansas at Monticello),
Mr. Jim Wise (Arkansas Department of Environmental Quality),
Ms. Lauren Chambers (USDA Rural Development),
Mr. Rich Joslin (Natural Resources Conservation Service),
Mr. John Lee, (Natural Resources Conservation Service) - special invitee, and
Mr. Tony Ramick (Arkansas Natural Resources Commission)

Arkansas Natural Resources Commission

GOAL

Develop a Cloud Based Version of StreBanD

SCOPE

Riparian buffer inventory analysis:

a) Type and extent
b) Identify gaps
c) Identify level of restoration needed
d) Complement studies on prioritization of future buffers

LONG TERM BENEFITS

- 13,490 miles of rivers and streams digitized in the ADEQ Water Base Layer*.
- Perform inventory of current level of perennial riparian vegetation (buffers) along rivers and streams
- Geographic Information System (GIS) software based tool, hosted on cloud, overcome infrastructure limitations

*Source: 2014 Integrated Water Quality Assessment Report , ADEQ.

StreBanD Cloud

Updates

INPUT DATA REQUIRED

Dataset	Source
Stream centerline	National Hydrography Dataset (NHD)
Orthographic imagery	Arkansas GeoStor
Land Use and Land Cover	Center for Advanced Spatial Technologies (CAST)
Digital Elevation Model (DEM)	Arkansas GeoStor
Slope %	Derived from DEM using gdaldem

WORK FLOW

- Create Streambanks*
- Generate slope data from DEM
- Perform vegetation inventory in the Riparian Zone using guidelines in NRCS code 391 and 393
- Color code segments to indicate inventory status of Riparian Vegetation

(*source: Pai, N. and D. Saraswat. 2013. A geospatial tool for delineating streambanks. *Environmental Modelling & Software* 40(2):151-159.)

DECISION CRITERIA: ACT 391

Specifications for Zone 1 and 2 are provided in NRCS practice code 391

Zone 1 - minimum buffer width of 15 feet (forest cover)
Zone 2 - located upslope from Zone 1 a minimum buffer width of 20 feet (primarily consist of forest cover)
Zone 1 and 2- a combined minimum buffer width of 35 feet.

Depending on the adjacent land use (e.g. cropland, pasture, etc.) an additional filter strip needs to be implemented upslope from Zone 2.

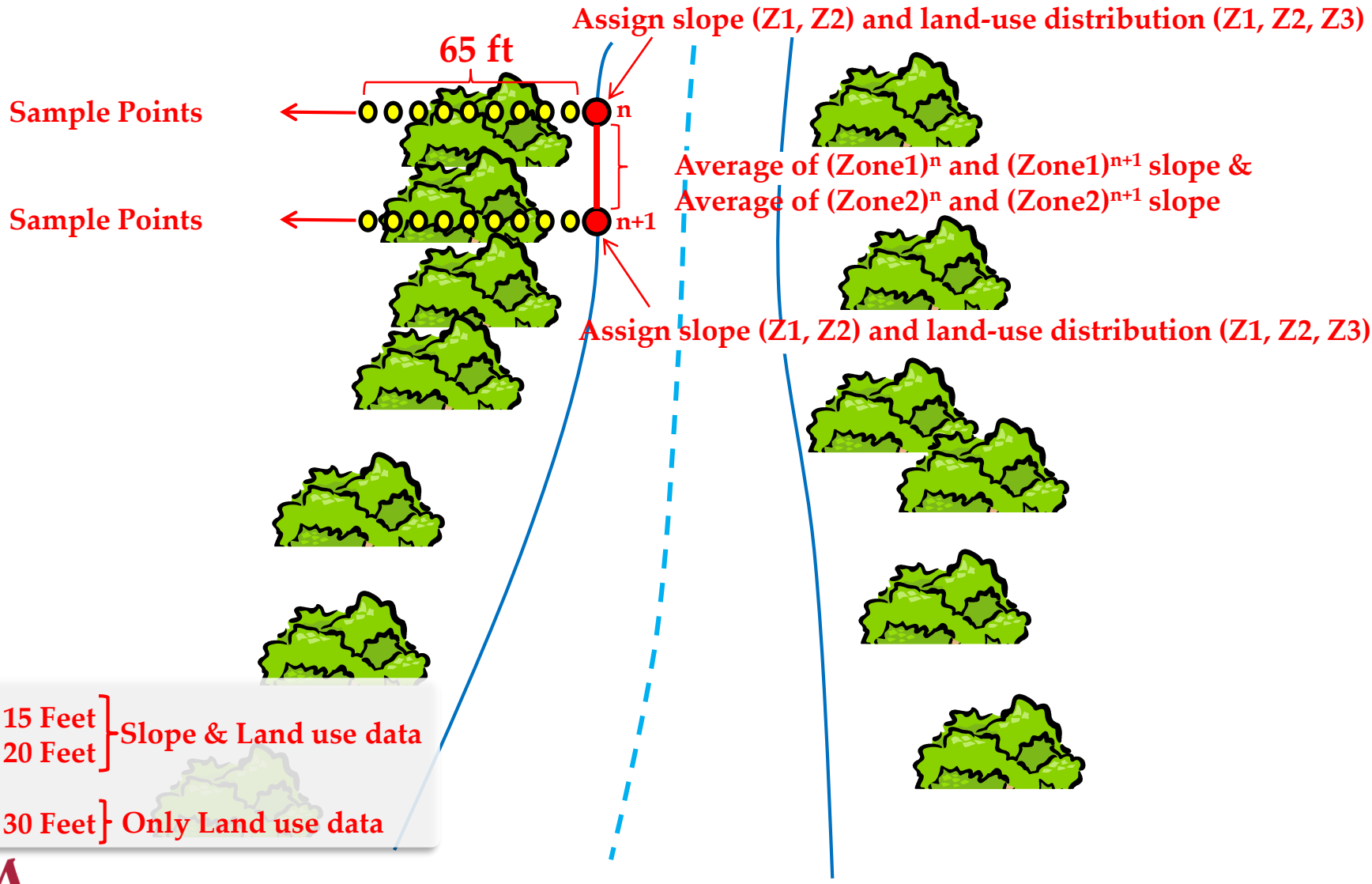
DECISION CRITERIA: ACT 393

Specification for Zone 3 is provided in NRCS practice code 393

Filter strip (termed as Zone 3) should have a minimum buffer width of 30 feet, and include mostly herbaceous vegetation (NRCS, 2004).

Zones 1, 2, and 3 must have a **minimum width of 65 feet**.

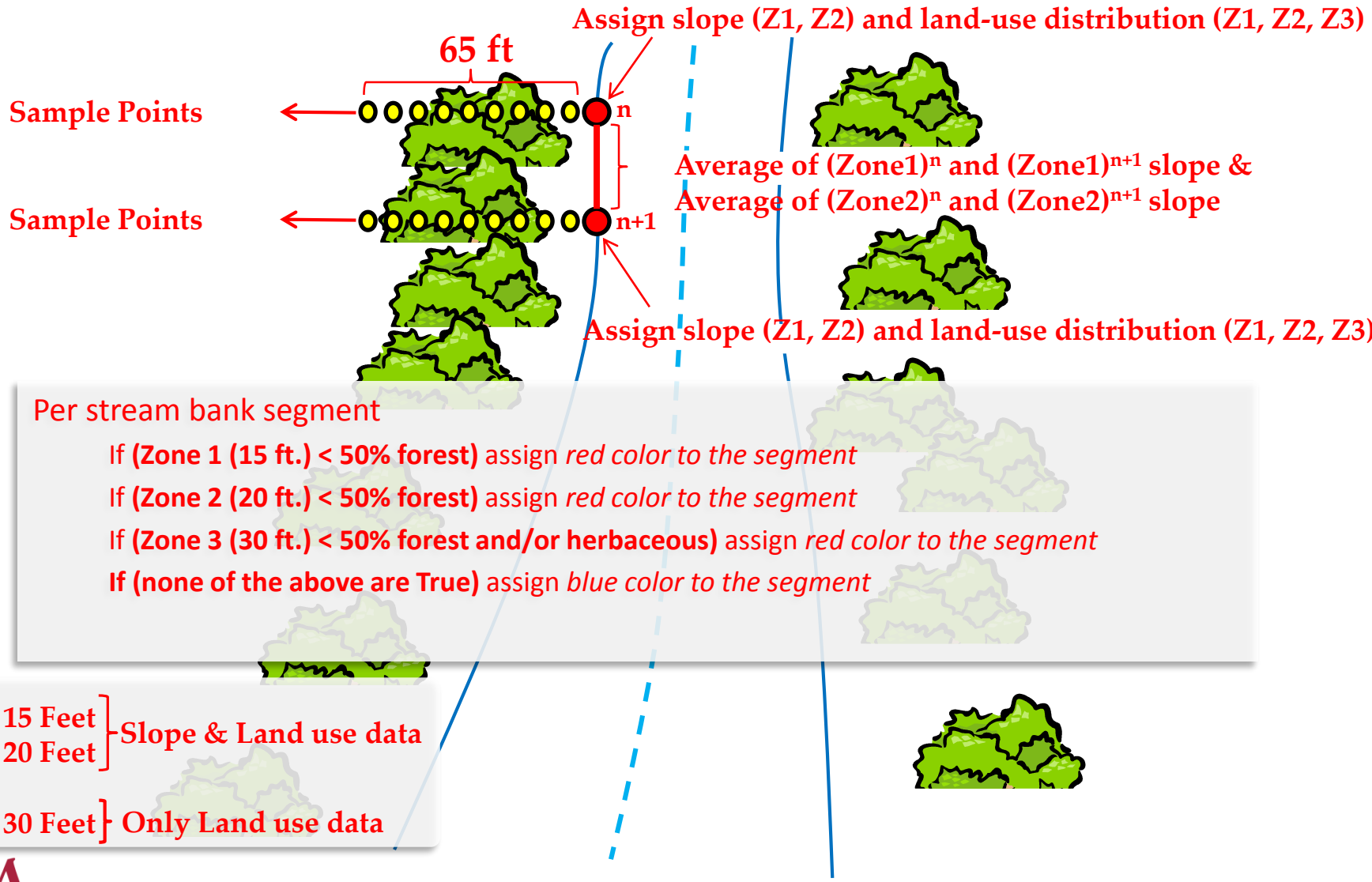
Sampling Transects



Zone1 = 15 Feet
Zone2 = 20 Feet
} Slope & Land use data

Zone3 = 30 Feet
} Only Land use data

Sampling Transects



Per stream bank segment

If **(Zone 1 (15 ft.) < 50% forest)** assign *red color to the segment*

If **(Zone 2 (20 ft.) < 50% forest)** assign *red color to the segment*

If **(Zone 3 (30 ft.) < 50% forest and/or herbaceous)** assign *red color to the segment*

If (none of the above are True) assign *blue color to the segment*

Zone1 = 15 Feet
Zone2 = 20 Feet
} Slope & Land use data

Zone3 = 30 Feet } Only Land use data

DEMO

THANKS
QUESTIONS?