

Enclosure 2

Ecological Issues Evaluation Results of the Jacob's Creek Landing Neosho River Log Jam

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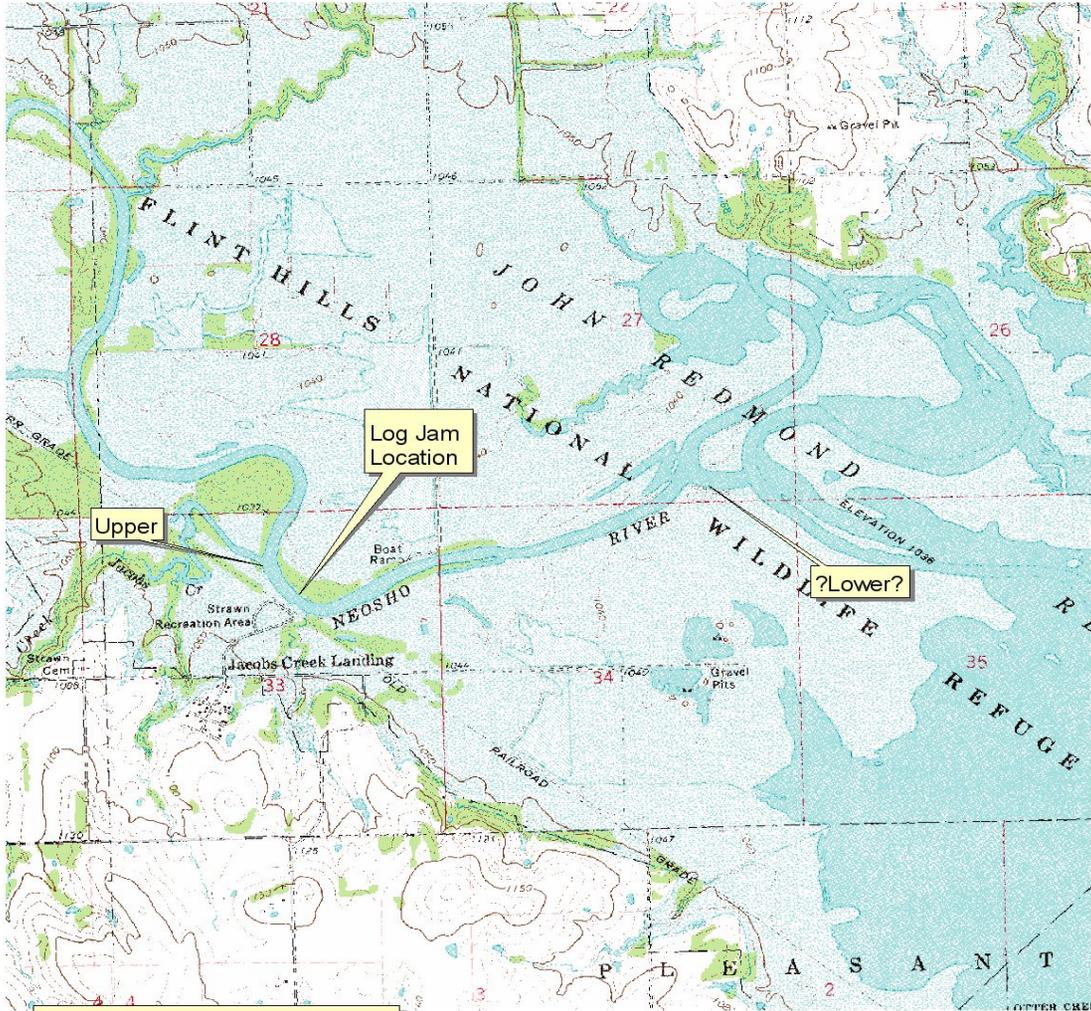
FIELD RESPONSE TO SERVICE REQUEST

- July 23, 2004- KDHE and DWR made a site visit.

Observations included:

- Boat ramp was un-useable.
- 55 gallon drum, cooler and small gallon container.
- Water still flowing in/out of the area indicated by stranded forage fish, water moving through ditches, over roads, etc.
- Wildlife feeding in floodwater next to US Fish and Wildlife Refuge road to Strawn Flats.
- Fish surfacing and feeding on or between logs.
- Woody debris varied in size from branches to trunk logs.

**Log jam
UFWS**



**Hartford & Ottumwa, KS Quads
(Twp 20 S, Rng 14 E)**





UN-
BELIE
VABLE



ARE WE
REALLY IN
KANSAS?



FOLLOW-UP

Facts gathered and reported back to the agency.

- COE owns floodplain, boat ramp. USF&WS manage floodplain for wildlife.
- The log jam phenomenon has been occurring over several decades.
- It should have been handled by the COE sooner.
- This is just the succession of a floodplain
- There were livestock carcasses observed earlier along with barrels, refrigerators etc.
- Mosquitoes are increasing and West Nile Virus concerns are increasing.
- Land clearing, farmers pushing trees to plant crops, WLR wildlife habitat management practices all contributed.

Mosquitoes and West Nile Virus

- Aug 10th Survey by KSU
 - KDHE recognizes flood conditions
 - Likelihood of habitat created by receding water is apparent.
 - Confident in the KDW&P and US F&W's conclusion.
 - Mosquito fish will control populations
 - Life cycle follows that of the mosquito
 - Tolerant of low oxygen conditions
 - Other predators will contribute to the population control

ACTIONS TAKEN

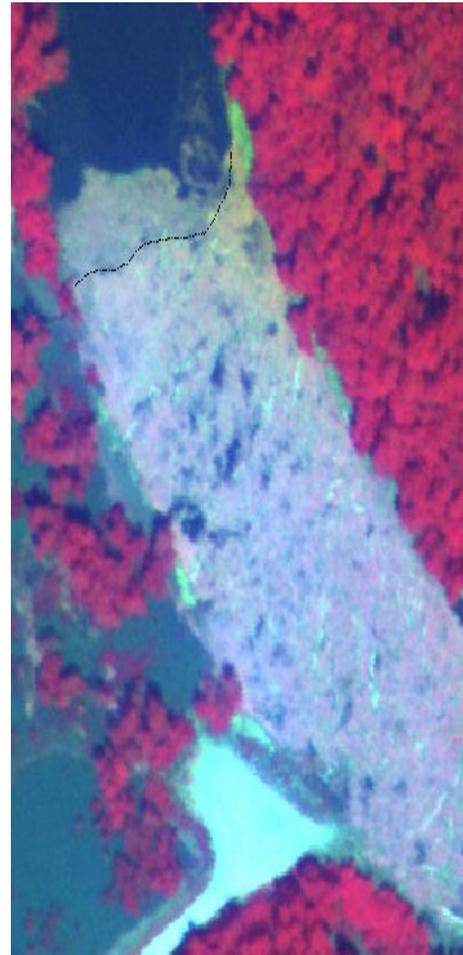
KDHE WMS hired Kansas Biological Survey
Kansas Applied Remote Sensing (KARS)
Program

- Flight included the floodplain impacted by the log jam
- Produce aerial imagery
.5 sq. meters resolution
- Use in lab spectral band reflectance
processing Identify
solid waste
- Evaluate riparian conditions and management

RESULTS

- The jam is expanding

Figure 2. Image from August 2004 with a patch of relatively newly deposited debris shown above the black line.





Log jam 1991

Log jam 2002

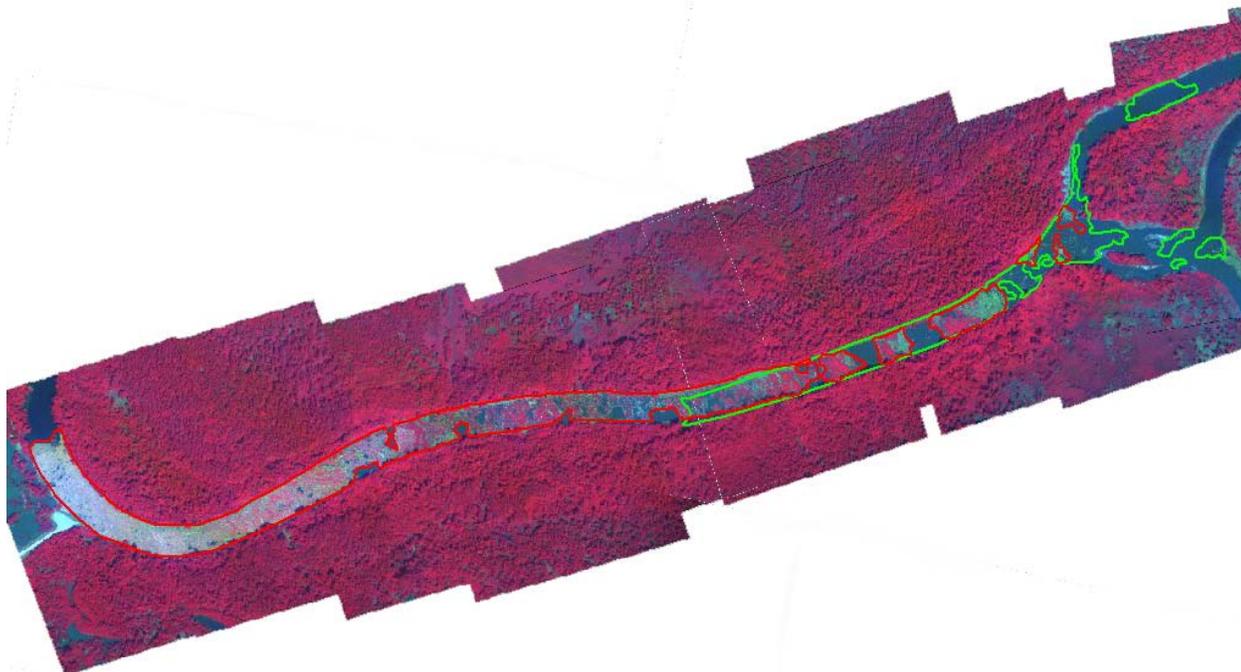
Log jam 2004

1

0

1 Miles





Background: Near Infrared false color composite from airborne multispectral camera. August 17, 2004



RESULTS CONTINUED

- Identified 63 items considered to be solid waste including. (non-natural material).
- An estimation of the solid waste concentration is approximately 1 item per 18,604 sq. ft.
- There is no evidence of a concentration of waste items.

RESULTS CONTINUED

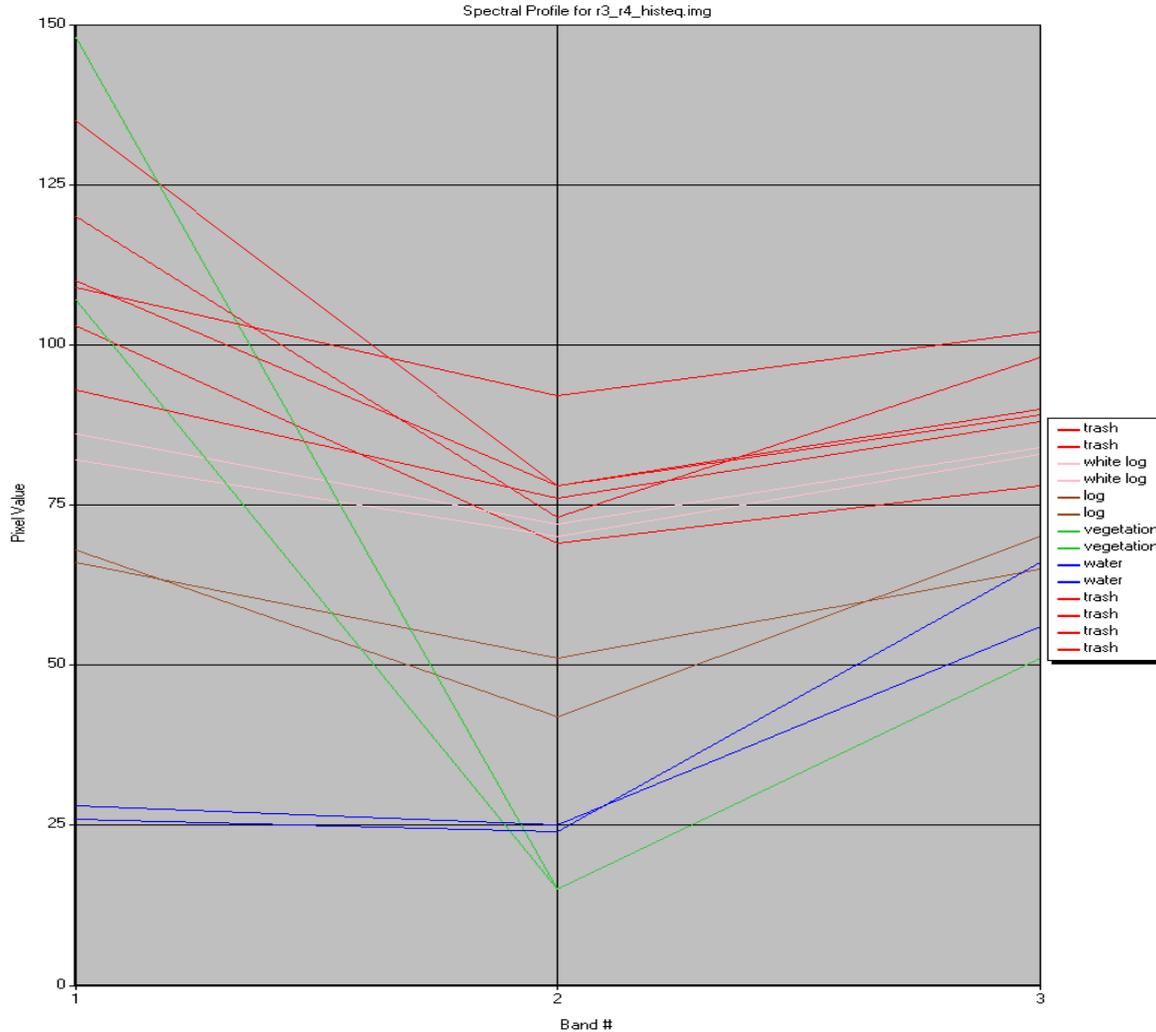


Figure 3. Graph showing the amount of reflectance (vertical axis) of each of the three spectral bands of the DuncanTech camera. Note how each type of feature has a unique reflectance pattern: Red = SW, pink= bright logs, brown = common log, blue = water, green = vegetation.

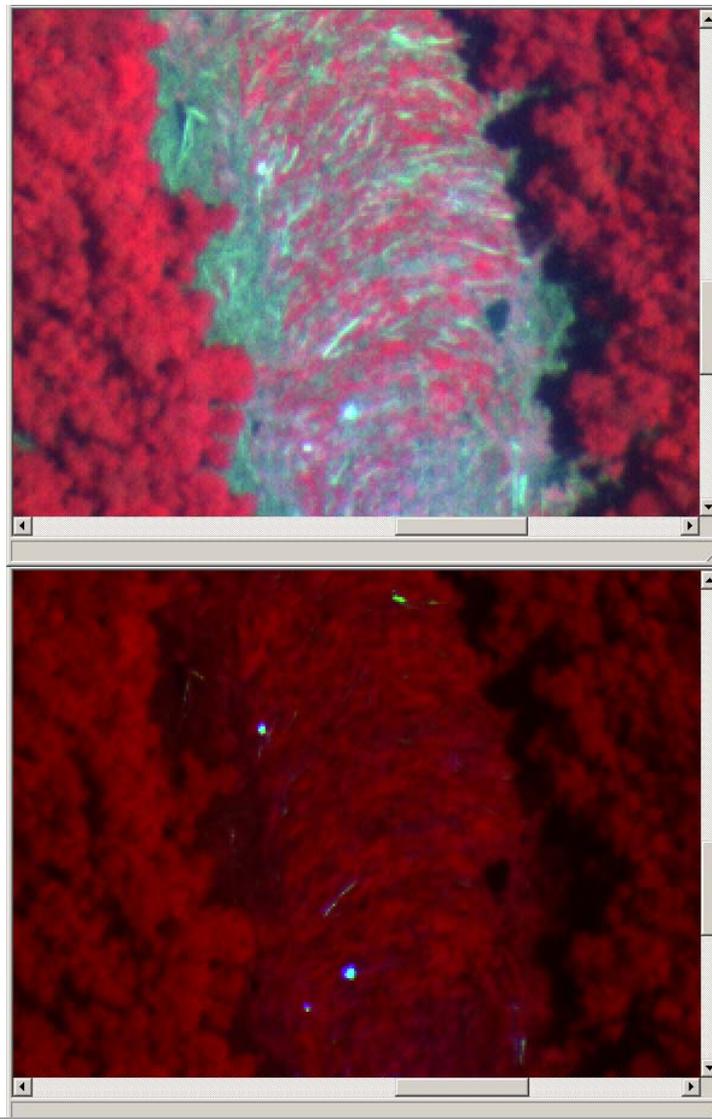
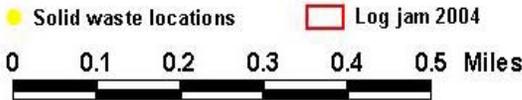


Figure 4. Two view of DuncanTech imagery used to identify non-natural debris points. The top image shows the original imagery used to visually identify SW, while the lower image shows the same area, but after adjusting the brightness of the red and blue bands to highlight the highly reflective debris.



Background: DOQQ photograph
February 2, 2002



REPORT CONCLUSIONS

- The assumption is there were no major illegal dumps involved.
- Little evidence the solid waste issue poses any higher of a health threat than the usual trash in our waterways.
- It is difficult to discern riparian management conditions using this technology. Trees and canopy cover makes it difficult to view downed trees, woody debris or dead stands of timber

RECOMMENDATIONS

- Presented Recommendations to Sub-Cabinet of Natural Resources.
- Short-Term:
 - Coordinate with COE on the log jam study
 - Contact COE for details
 - Consider additional state action based on the study findings.
- KDHE report to provide to local stakeholders
 - Potential health risks
 - Riparian conditions and management trends

RECOMMENDATIONS CONTINUED

- Long Term:
 - Tap into the WRAPS for financial and technical assistance. This can include but is not limited to
 - Conservation buffers
 - Timber management and harvesting
 - Solid waste and litter issues
 - KDHE has conferred with the State Forester
 - Inventory general timber stand using aging techniques.
 - KDHE will draft a letter requesting assistance.