

Cooperative Development of an Irrigated Lands Monitoring System for Northern Colorado

NORTHERN COLORADO WATER CONSERVANCY DISTRICT

PROJECT SUMMARY

The Northern Colorado Water Conservancy District required a means to monitor irrigated lands cost-effectively. Riverside Technology, inc. cooperatively developed a maintainable monitoring system that is applied annually to update information on irrigated lands.

LOCATION
Colorado, U.S.A.

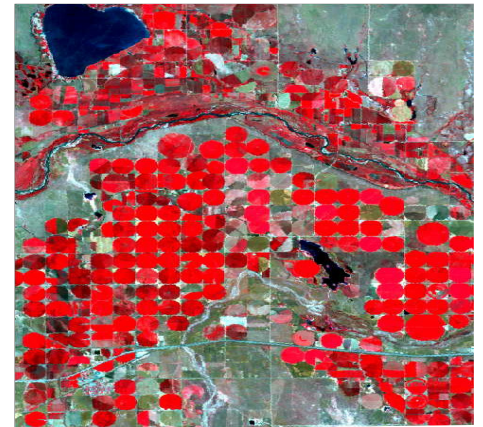
PERIOD
2003 – 2005

PROJECT DETAILS

Riverside Technology, inc. (Riverside) was contracted by the Northern Colorado Water Conservancy District (NCWCD) to cooperatively explore and develop a sustainable, cost-effective system for monitoring irrigated lands. The monitoring system is applied annually to update information on irrigated lands and improve NCWCD overall water resources management and administration of water in the NCWCD area.

Riverside assessed long-term data requirements and associated costs for a repeatable irrigated lands and crop characterization monitoring methodology. The methodology developed by Riverside included:

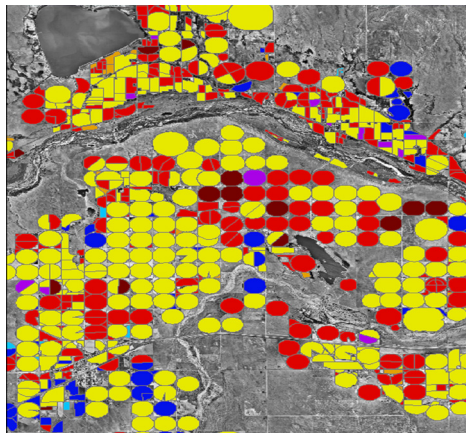
- Analysis of spectral characteristics of crops
- Definition of classification schemes
- Definition of classification techniques



Landsat imagery showing irrigated lands in July 2004

Riverside then designed an irrigated lands and crop-type monitoring knowledge base. This was accomplished by accumulating and organizing the information and logical decision rules relevant to the classification of irrigated lands. The decision rules were derived from the analysis of the information contained in the satellite imagery and ancillary data, as well as from the analysts' expertise.

Following the development of the knowledge base, irrigated lands and crop type monitoring tools were developed, including software applications and related analytical tools.



Crop type map of NCWCD area

Riverside used Classification and Regression Trees (CART) technology combining different classification criteria and data types into a streamlined, knowledge-based classification procedure.

The irrigated lands monitoring system was applied and validated for the 2004 growing season.

RELATED PROJECTS

Monitoring Irrigated Lands in the Lower Arkansas River Basin

Colorado River Decision Support System

South Platte Decision Support System Feasibility Study

South Platte Decision Support System

South Platte River Calibration

RIVERSIDE

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