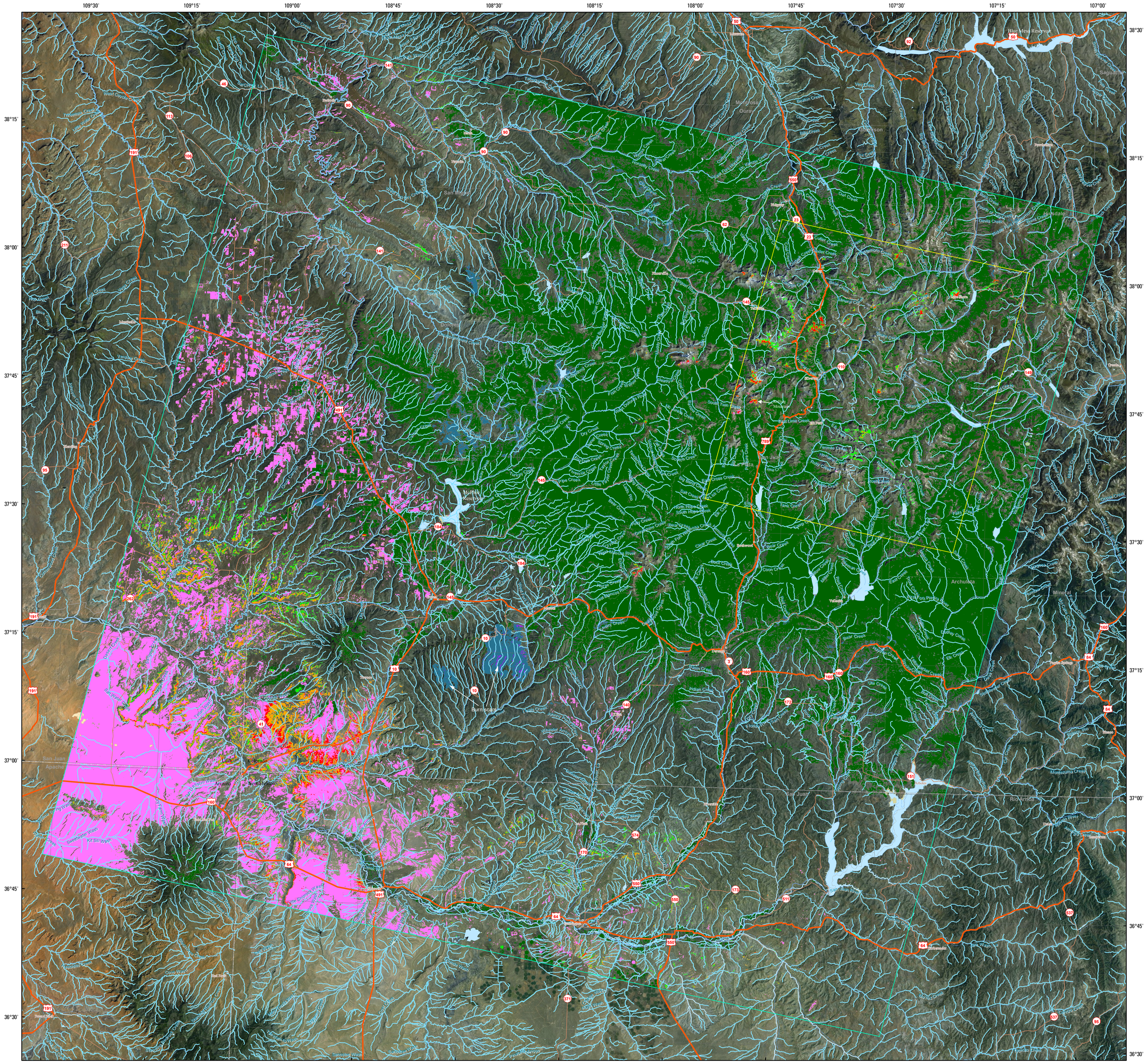
U.S. Department of the Interior
U.S. Geological Survey

Scientific Investigations Map 3252
Pamphlet accompanies map



Landsat 7 ETM+ Scene ID: LE70350342000256PAC01
Acquired September 12, 2000

Map generated by automated analysis of Landsat data involving compound band ratios as material indices. Mineral and vegetation groups displayed here were modeled from output material indices using Boolean arithmetic of pixel occurrence in one or more indices.

Outline of Landsat scene footprint is shown in cyan. Outline of footprint of ASTER scene described by Rockwell (2012) is shown in yellow.

Landsat 7 L1T orthorectified data obtained from USGS Earth Resources Observation and Science Center (EROS). Map projection: Universal Transverse Mercator (UTM) Zone 13 North, WGS 84 datum.

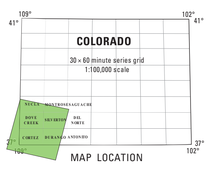
Background is imagery derived from multiple sources and served by ESRI (2012, http://goto.arcgisonline.com/maps/World_Imagery).



Scale 1:325 000

0 5 10 20 30 40 MILES

0 5 10 20 30 40 KILOMETERS



Map of Mineral Groups and Green Vegetation Derived From Automated Analysis of Landsat 7 Enhanced Thematic Mapper Plus Satellite Data: San Juan Mountains, Colorado and Four Corners Region

By
Barnaby W. Rockwell
2013

Any use of trade, product or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

Although this information product, for the most part, is in the public domain, it also contains copyrighted materials as noted in the text. Permission to reproduce copyrighted items for other than personal use must be secured from the copyright owner.

Although these data have been processed successfully on a computer system at the U.S. Geological Survey, no warranty expressed or implied is made regarding the display or utility of the data on any other system, or for general or scientific purposes, nor shall the act of distribution constitute any such warranty. The U.S. Geological Survey shall not be held liable for improper or incorrect use of the data described and/or contained herein.

Suggested citation:
Rockwell, B.W., 2013, Automated mapping of mineral groups and green vegetation from Landsat Thematic Mapper imagery with an example from the San Juan Mountains, Colorado: U.S. Geological Survey Scientific Investigations Map 3252, 25 p. pamphlet, 1 map sheet, scale 1:325,000, http://pubs.usgs.gov/sim/3252/.

Inferred acid-producing potential in non-sedimentary rocks

High

Low

EXPLANATION

Modeled mineral groups, and vegetation

- 9 — clay, sulfate, mica, and/or marble + major ferric iron
- 8 — clay, sulfate, mica, and/or marble + moderate to major ferric iron
- 7 — clay, sulfate, mica, and/or marble + minor ferric iron
- 3 — major ferric iron
- 1 — minor ferric iron (high redness)
- 5 — ferric +/- ferrous iron
- 6 — clay, sulfate, mica, and/or marble
- 10 — clay, sulfate, mica, and/or marble + ferrous or coarse-grained ferric iron
- 4 — ferrous or coarse-grained ferric iron (may include oxidized basalts, fire ash, some moist soils, and any blue/green rocks)
- 11 — dense, green vegetation

Numbers indicate digital value of specified class in associated raster GIS file

Outline of ASTER scene footprint from Rockwell (2012)

Outline of Landsat 7 scene footprint

This and other USGS information products are available at http://store.usgs.gov/.
U.S. Geological Survey
Box 25286, Denver Federal Center
Denver, CO 80225

To learn about the USGS and its information products visit http://www.usgs.gov/.
1-888-ASK-USGS

This report available at: http://pubs.usgs.gov/sim/3252/

For more information concerning this publication, contract:
Center Director, USGS Central Mineral and Environmental Resources Science Center
Box 25046, Mail Stop 973
Denver, CO 80225
(303) 236-1562

Or visit the USGS Central Mineral and Environmental Resources Science Center Web site at: http://minerals.cr.usgs.gov/.

Publishing support provided by:
Denver Publishing Service Center
Manuscript approved for publication on Feb. 7, 2013