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Placita 7 ½-inch Quad, Pitkin County, Colorado—3D Geology Map Using Esri ArcGIS10

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Introduction

The Placita 7 ½-inch quadrangle covers the southern portion of the Carbondale, Colorado, coal mining area near Redstone, Pitkin County, Colorado. In 2010, I presented an example of data capture and conversion into Esri Geodatabase using new 2D and 3D capabilities of Esri's ArcGIS10. As an example of a complete 3D geologic map, the draped 2D data from the original maps has been extruded into a fully functional 3D geologic model.

Demonstration

This poster was both a paper printed product and a live digital demonstration of the data.

Acknowledgments

The author thanks Geoff Wade and Danny Spillmann of ESRI for their ongoing support of geology and natural resource industry activities at Esri, and Dave Soller (U.S. Geological Survey) for all his tireless work with the Digital Mapping Techniques (DMT) program.

References

ArcGIS10, Esri, 380 New York St., Redlands, CA 92373-8100 U.S.A., (909) 793-2853, *http://www.esri.com/*.

Kent, B.H., and Arndt, H.H., 1980, Geology of the Carbondale coal mining area, Garfield and Pitkin Counties, Colorado: U.S. Geological Survey Open-File Report OF–80–709, scale 1:24,000.

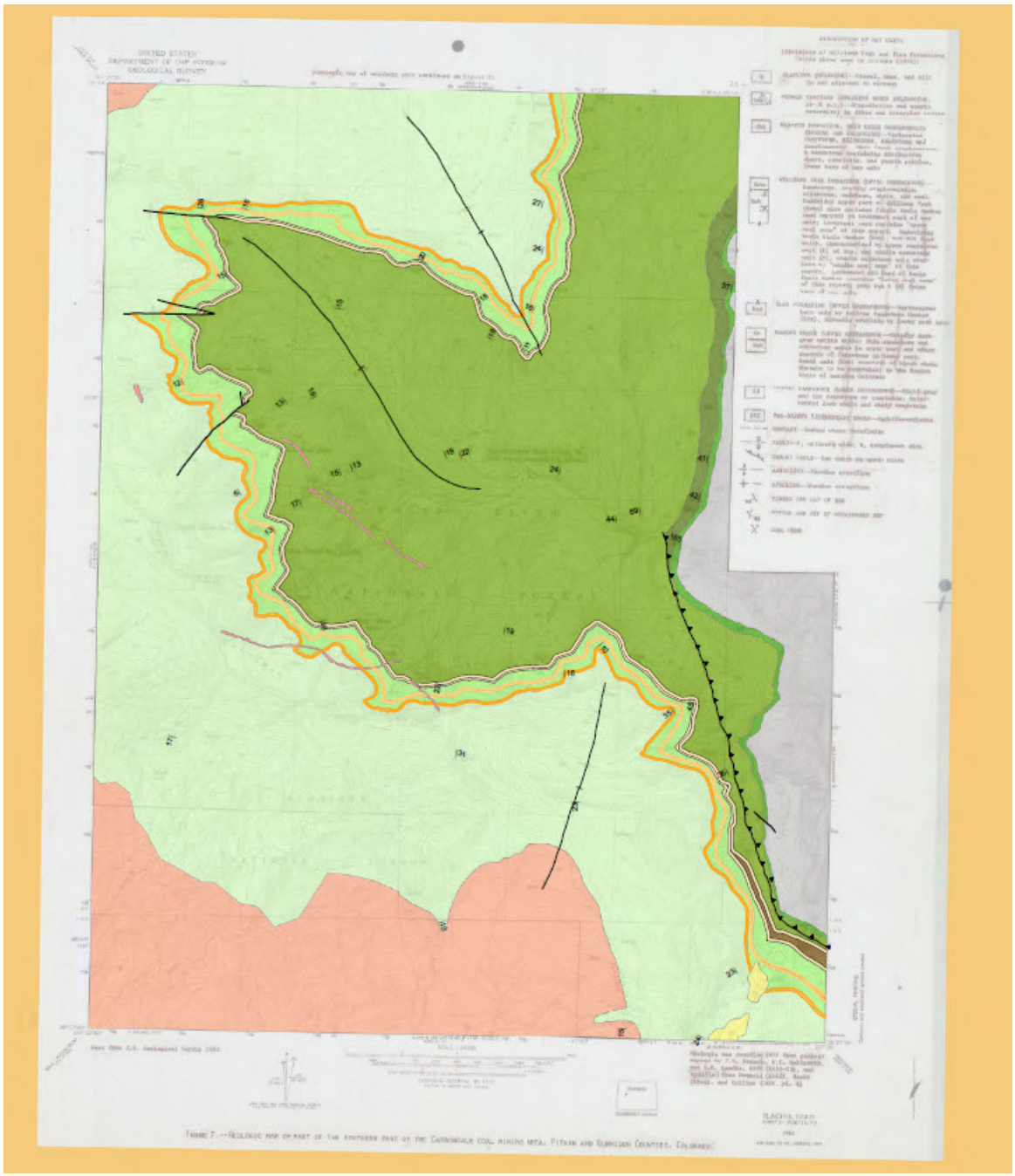

Figure 1. Placita 7 ½-inch geologic quadrangle showing the source data from U.S. Geological Survey Open-File Report OF–80–709 of the Carbondale Coal Mining area (Kent and Arndt, 1980) used for creation of the new 3D geologic quadrangle map.

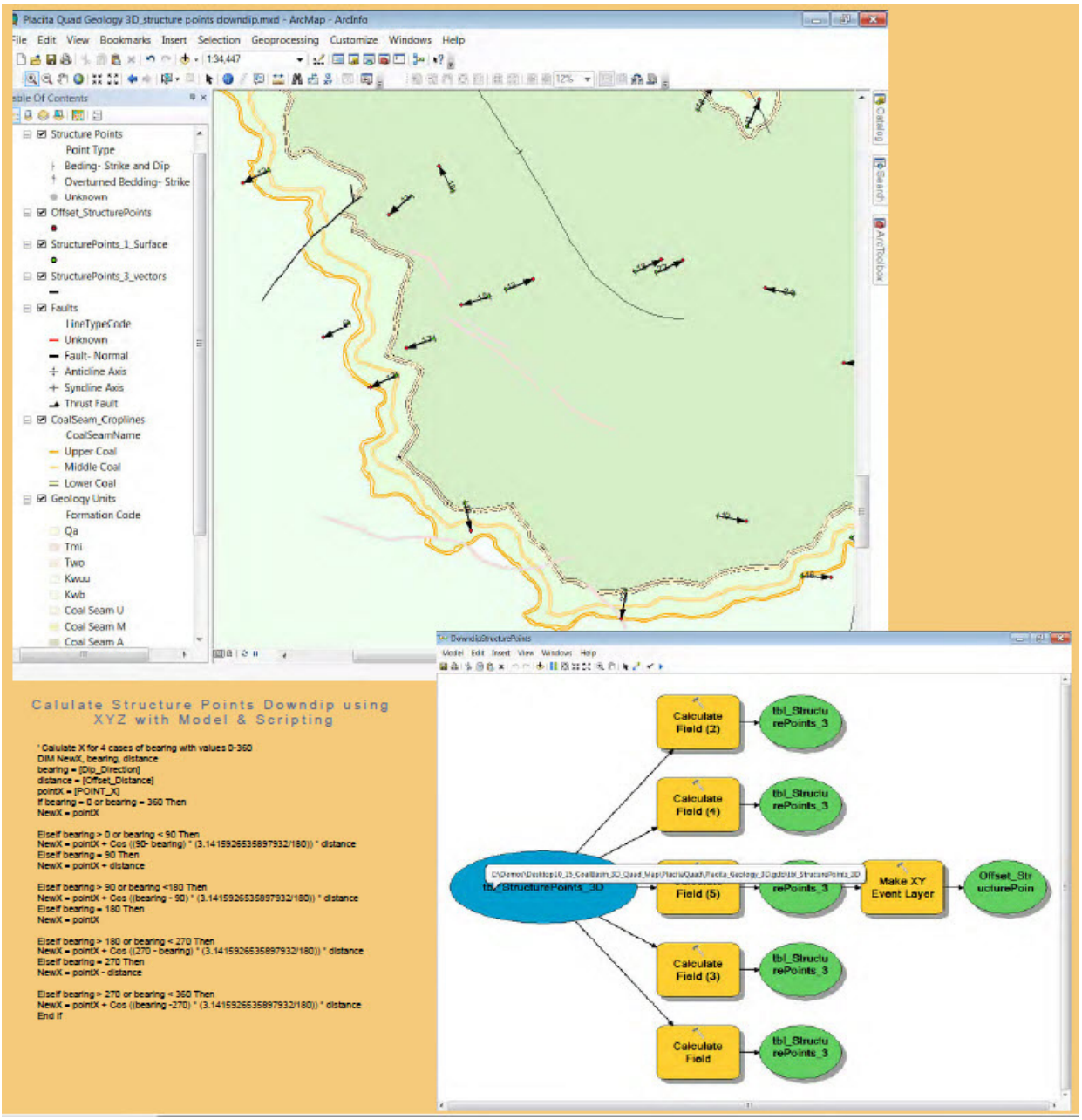

Figure 2. Esri ArcGIS10 ArcMap 2D GIS map showing the Placita 7 ½-inch geologic quadrangle with 2D geologic point, line, and polygon features and conversion tools used to create 3D features.

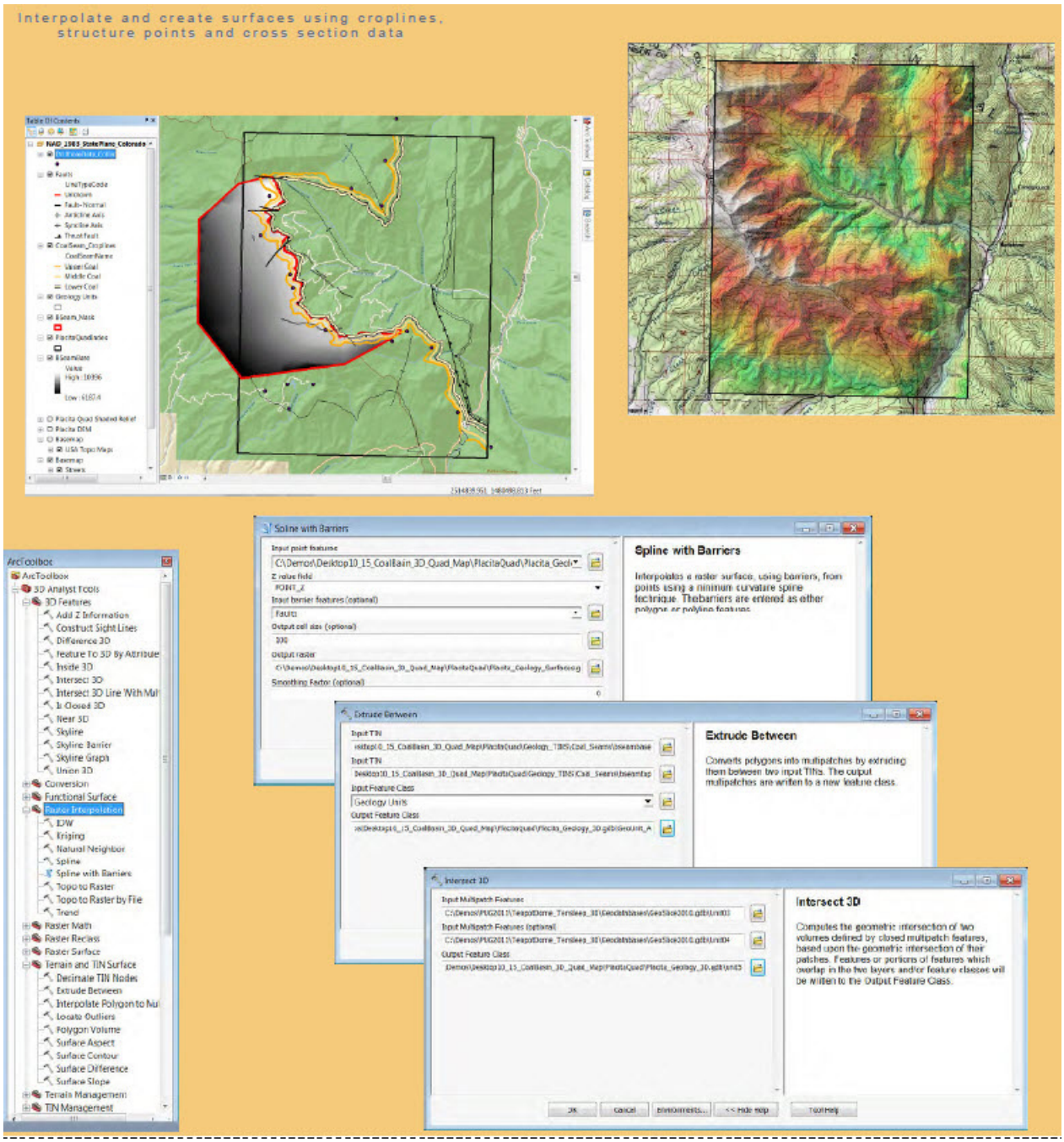

Figure 3. ArcGIS10 3D tools used to interpolate 3D surfaces, extrude 3D multipatch features, and intersect 3D geologic units.

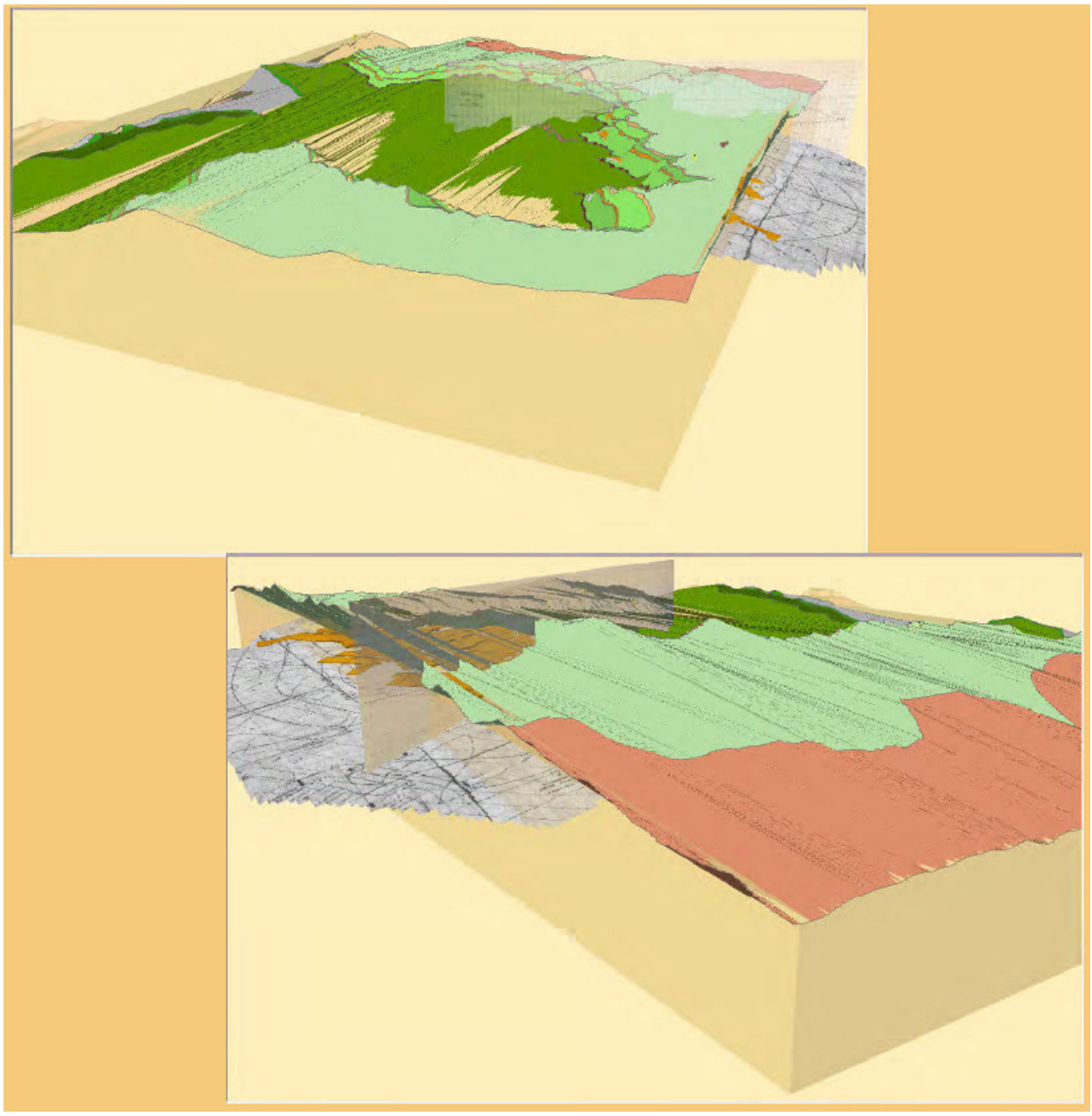

Figure 4. Esri ArcGIS10 ArcScene 3D GIS views of the Placita 7 ½-inch geologic quadrangle as 3D perspectives of geologic block model showing surface geology draped on topography and subsurface 3D multipatch features.