REPORT OF INVESTIGATION 2026-2
Nicolazzo, 2026
SHEET 1 OF 3
Explanatory report accompanies map
http://doi.org/10.14509/32057

Landslide Inventory Map on Wrangell Island, Alaska

by
J.A. Nicolazzo
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Scale 1:25,000 at full-size print (original format)
Scale ~1:26,600 when reduced to 48-inch sheet

EXPLANATION

This map presents an inventory of mapped slope failures on Wrangell Island. The inventory serves as an essential data input layer used to model shallow landslide susceptibility and debris flow inundation presented on map sheets 2 and 3. It incorporates the published Tongass National Forest Landslide Inventory (U.S. Forest Service, 2024) and additional landslides identified through interpretation of aerial imagery and lidar datasets.

The inventory was prepared using methods similar to those developed by the Oregon Department of Geology and Mineral Industries (DOGAMI) (Burns and Madin, 2009), and uses the same attributes and data dictionary as the Alaska Landslide Inventory (Nicolazzo and Larsen, 2025). The inventory is displayed over a hillshade raster image derived from the 2023 lidar dataset (Zechmann and others, 2023).

Due to the scale of the map (1:25,000), landslide flanks, and rockfall features may be too small to see. The inset maps show examples of a landslide flank a roadcut with mapped rockfall hazards.

STUDY AREA
POND
MILEPOST

ROAD CENTERLINES
Active
Inactive
Closed
Status Unknown

MOVEMENT SYMBOLOGY

INITIATION SITE Approximate location, not field verified, color as described below

SCARP Approximate location, hachures point downslope

FLANK Approximate location, may not be visible at this map scale, see inset map

DEBRIS FLOW, UNDIFFERENTIATED May include debris flow, earthflow, mudflow, etc.

LANDSLIDE, UNDIFFERENTIATED May include translational and rotational landslides.

ROCKFALL, UNDIFFERENTIATED May include rockfall and rock topple.

CONFIDENCE SYMBOLOGY

SOLID OUTLINE, SOLID COLOR High confidence, high accuracy

DASHED OUTLINE, SOLID COLOR Uncertain identity or approximate location

DASHED OUTLINE, HATCHED COLOR Questionable identity or inferred location

LIMITATIONS

This slope failure inventory was developed with the best available data; however, there are inherent limitations. These limitations underscore that this map was designed for regional application and should not be used as an alternative to site-specific studies.

- Lidar provides a snapshot view of the landscape at the time of data collection; therefore, maps based on lidar data interpretation may become less accurate as new landslides occur or improved technology becomes available.
- Lidar data interpretation may also change as new mapping techniques are developed.
- While every reasonable effort was made to identify all slope failures, limitations in lidar data, available imagery, vegetation cover, and the lack of field verification mean that some slope failures were likely missed, overlooked, or misinterpreted.
- Lidar-based analysis cannot always distinguish between natural elevation changes (e.g. landslide scour and deposition) and man-made structures (e.g. buildings and other structures).
- This map is intended for regional-scale purposes and to assist state and local agencies in land-use planning. The map does not replace site-specific investigations and is not suitable for land-use regulation, building-code development, or to answer legal questions. It should not be used to assess the hazard to any one property. However, the map can serve as a useful tool for estimating the regional slope failure hazard and as a starting place for future site-specific maps.
- DGGS is not a regulatory agency; therefore, this map is non-regulatory.

REFERENCES CITED

Burns W.J., and Madin I.P., 2009, Protocol for inventory mapping of landslide deposits from light detection and ranging (lidar) imagery: Oregon Department of Geology and Mineral Industries Special Paper 42, 30 p. https://www.oregongeology.org/pubs/sp/p-SP-42.htm

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Zechmann, J.M., Wikstrom Jones, K.M., and Wolken, G.J., 2023, Lidar-derived elevation data for Wrangell Island, Southeast Alaska, collected July 2023: Alaska Division of Geological & Geophysical Surveys Raw Data File 2023-28 v. 1.1, 14 p. https://dggs.alaska.gov/pubs/id/31098

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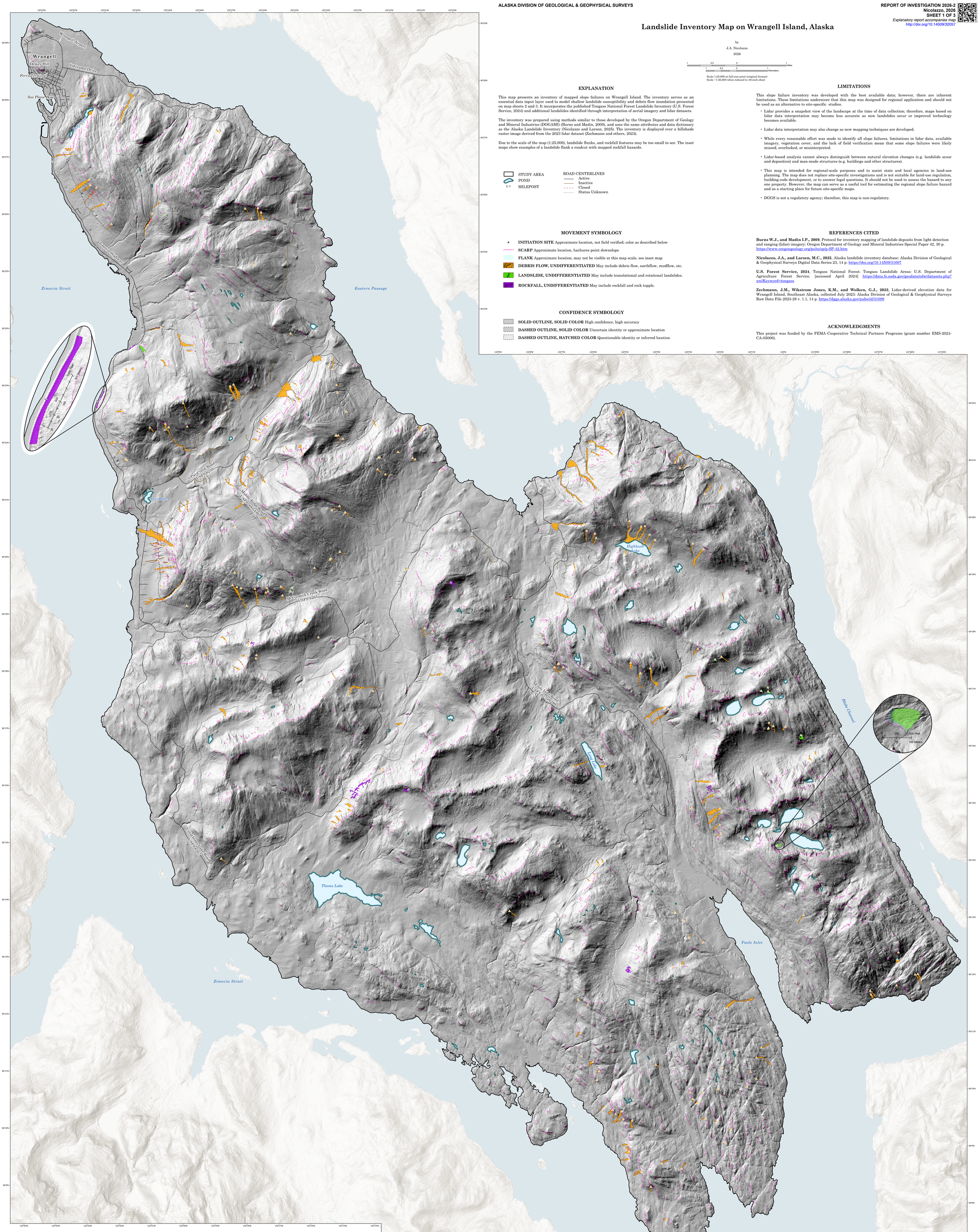

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STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL & GEOPHYSICAL SURVEYS
3354 College Road ♦ Fairbanks, Alaska 99709-3707
Phone 907-451-5010 ♦ Fax 907-451-5050
email: dggspubs@alaska.gov ♦ website: dggs.alaska.gov

Map Location

Location of Map Area

Base maps:
Lidar-derived hillshade from Zechmann and others (2023)
Reference layer beyond lidar extent:
Esri's World Hillshade and World Terrain Base
Map Coordinate System:
NAD 1983 (2011) UTM Zone 8N
Vertical Datum:
NAVD88

Software:
ArcGIS Pro 3.6.2
GIS data layers and Cartography by:
J.A. Nicolazzo
Cartographic review by:
A.E. Macpherson