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Barnett, P.J., Yeung, K.H. and McCallum, J.D. 2011. Surficial geology of the Moose River area northeast, northern Ontario; Ontario Geological Survey, Preliminary Map P.3750, scale 1:100 000.

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Marginal Notes

In 2008, the Ontario government announced plans to permanently protect half of the Far North region of Ontario and launched a planning process to support this goal (Far North Information Knowledge Management Program). During the initial stages of planning, the need for primary landscape data became apparent. A terrain mapping project to remotely predict surficial materials was initiated by the Ontario Geological Survey in response to this information need.

SPOT imagery (4 colour bands and the panchromatic band), a digital elevation model and its derivatives and the Ontario Hydro Network vector drainage shape files (Ontario Ministry of Natural Resources 2010) are the primary data sources for this remote predictive mapping exercise. A multiresolution segmentation algorithm, using different image layer weights, scale parameters and homogeneity criterion, within an object-based image analysis software is used to achieve meaningful objects representing various surficial material types. Objects are then classified based on digital signature, internal variability of signature and proximity to certain vector layers and certain adjacent material types.

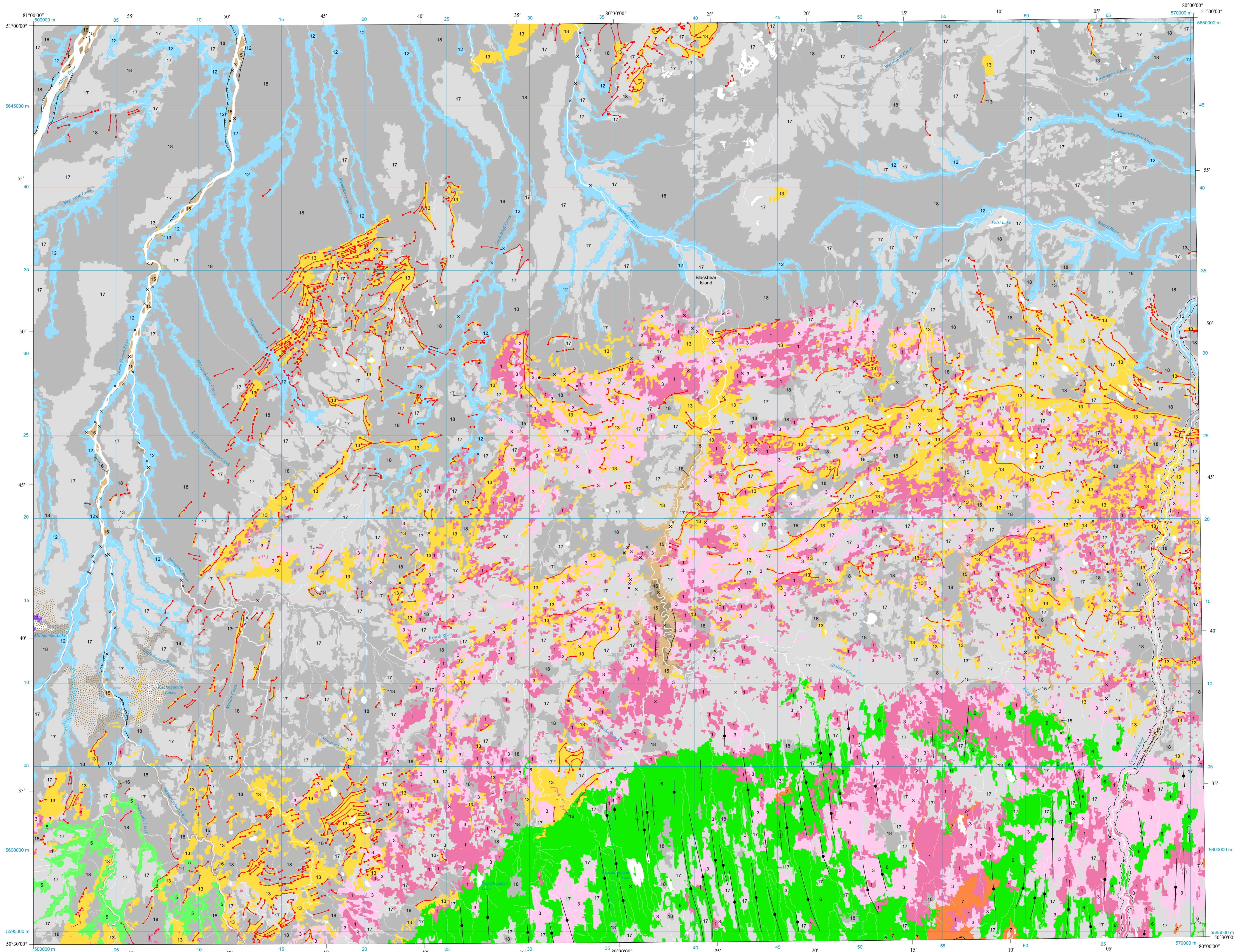
Limited helicopter-supported field work combined with the examination of archival information (Riley and Boissonneau unpublished field notes and photographs; Geological Survey of Canada, Operation Winkisk unpublished field notes; Skinner 1973; Sanford, Norris and Bostock 1968; Sanford and Norris 1975; and Thorliffeon, Wyatt and Warman 1993, and their unpublished field notes) provided the ground control on the classification of objects. In addition, information from the various other Far North Information Knowledge Management Program projects, such as base data and land cover information (Ontario Ministry of Natural Resources, in progress), has been used in the interpretation and classification of the surficial materials.

The maps show only the surficial material distribution. For better definition of wetland types please refer to the Ontario Ministry of Natural Resources Far North Land Cover 2005-2009 digital series of maps. Older deposits that occur along many of the deep incised river valleys are not depicted. However, the reader is encouraged to review books by Skinner (1973) and Thorliffeon, Wyatt and Warman (1993) for further information and details on the older sediments exposed along rivers within the Hudson Bay Lowland.

This project is funded by the Far North Branch, Ontario Ministry of Natural Resources, and the Ontario Geological Survey, Ontario Ministry of Northern Development, Mines and Forestry. Map symbols were digitized by D. Partridge and J. Bonin. Interaction with the First Nation community members greatly enhanced the map products of the Far North Information Knowledge Management Program Terrain Mapping Project.

REFERENCES

- Geological Survey of Canada. Operation Winkisk unpublished field notes, Geological Survey of Canada, Ottawa, Canada.
Ontario Ministry of Natural Resources 2010. Ontario Hydrographic Network. Ontario Ministry of Natural Resources, Land Information Ontario, OHN digital layer files, Peterborough, Ontario.
Ontario Ministry of Natural Resources, in progress. Far North Land Cover 2005-2009 (digital map series). Ontario Ministry of Natural Resources, Land Information Ontario, Peterborough, Ontario.
Riley, J. and Boissonneau, A. Unpublished field notes and photographs; Ontario Ministry of Natural Resources, Peterborough, Ontario.
Sanford, B.V. and Norris, A.W. 1975. Devonian stratigraphy of the Hudson Bay Platform. Geological Survey of Canada, Memoir 379, 124p.
Sanford, B.V., Norris, A.W. and Bostock, H.H. 1967. Geology and bibliography of the Hudson Bay Lowlands. Operation Winkisk. Geological Survey of Canada, Paper 67-60, 118p.
Skinner, R.G. 1973. Quaternary stratigraphy of the Moose River Basin, Ontario. Geological Survey of Canada, Bulletin 225, 77p.
Thorliffeon, L.H., Wyatt, P.H. and Warman, T.A. 1993. Quaternary stratigraphy of the Seven and Winkisk drainage basins, northern Ontario. Geological Survey of Canada, Bulletin 442, 59p.



LEGEND*

PHANEROZOIC

CENOZOIC

QUATERNARY

- 20 Marine Mud-Flat Deposits: Sand, silt and clay; deposited in mud flats and offshore bars within the tidal zone.
19 Marine Salt-Marsh Deposits: Silt and clay with organic matter; minor sand; deposited in salt marshes along present-day coasts.
18 Organic Deposits: Peat, muck and/or marl; deposited in fen wetlands.
17 Organic Deposits: Peat, muck and/or marl; deposited in bog wetlands.
16 Fluvial Deposits (recent): Stratified sand and gravel; may include silt, minor clay; deposited in bars and channels of present-day rivers and creeks.
15 Fluvial Deposits (abandoned): Stratified sand and gravel; may include silt, minor clay; deposited in bars and channels along abandoned terraces of rivers and creeks.
14 Marine Deltic Deposits: Stratified sand and gravel; silt, minor clay; deposited at the mouths of rivers and creeks entering a postglacial sea.
13 Marine Beach and Nearshore Deposits: Stratified sand and gravel; minor silt, clay; deposited primarily in the shore zone and nearshore zone of a postglacial lake.
12 Marine Basin Deposits: Massive to stratified silt and clay; minor sand; deposited in basinal areas of a postglacial sea.
11 Glaciolacustrine Deltic Deposits: Stratified sand and gravel; may include minor silt and clay; deposited at the mouths of rivers and creeks entering a proglacial lake.
10 Glaciolacustrine Beach and Nearshore Deposits: Stratified sand and gravel; minor silt; deposited primarily in the shore zone and nearshore zone of a proglacial lake.
9 Glaciolacustrine Basin Deposits: Stratified silt and clay; minor sand; deposited in basinal areas of a proglacial lake.
8 Glaciolacustrine Outwash Deposits: Stratified sand and gravel; including minor silt, clay; deposited in bars and channels in rivers flowing from a glacier.
7 Glaciolacustrine Ice-Contact Deposits: Stratified sand and gravel; including minor silt, clay, silt and flowite; deposited in eskers, kames, deltas and subaqueous fans and in end and recessional moraines along a glacier margin.
6 Till: Massive to bedded diamict; clayey silt to clay matrix; clay content low to moderate; moderate to high matrix carbonate content; rare discontinuous layers or lenses of stratified gravel, sand, silt and/or clay; includes flowites. Deposited at the base or along the margins of a glacier.
5 Till: Massive to bedded diamict; sandy silt to silt matrix; clay content moderate to high; low to high matrix carbonate content; rare discontinuous layers or lenses of stratified gravel, sand, silt and/or clay; or flowites. Deposited at the base or along the margins of a glacier.
4 Till: Massive to bedded diamict; silty sand to sand matrix; clay content moderate to high; low to moderate matrix carbonate content; rare discontinuous layers or lenses of stratified gravel, sand, silt and/or clay; or flowites. Deposited at the base or along the margins of a glacier.
3 Thin Sediment over Bedrock: Thin, near-continuous cover of Quaternary sediments overlying undifferentiated bedrock. Quaternary sediments are commonly less than 1 m thick; however, areas of outcrop indicated on the map may contain small areas where the cover exceeds 1 m in thickness, but are too small to delineate at this map scale.

PALEOZOIC, MESOZOIC AND CENOZOIC (TERTIARY)

- 2 Bedrock: Undifferentiated bedrock with a thin, discontinuous cover of Quaternary sediments. Quaternary sediments rarely exceed 0.5 m in thickness; however, areas of outcrop indicated on the map may contain small areas where the cover exceeds 1 m in thickness, but are too small to delineate at this map scale.

PRECAMBRIAN

- 1 Bedrock: Undifferentiated bedrock with a thin, discontinuous cover of Quaternary sediments. Quaternary sediments rarely exceed 0.5 m in thickness; however, areas of outcrop indicated on the map may contain small areas where the cover exceeds 1 m in thickness, but are too small to delineate at this map scale.

*The map legend applies to Preliminary Maps P.3625 to P.3758. Deposits on this sheet are mapped primarily where they reach 1 m or more in thickness. Thinner deposits are not generally shown. All legend units or deposit types may not be present on this map.
*As presented on published and unpublished maps.

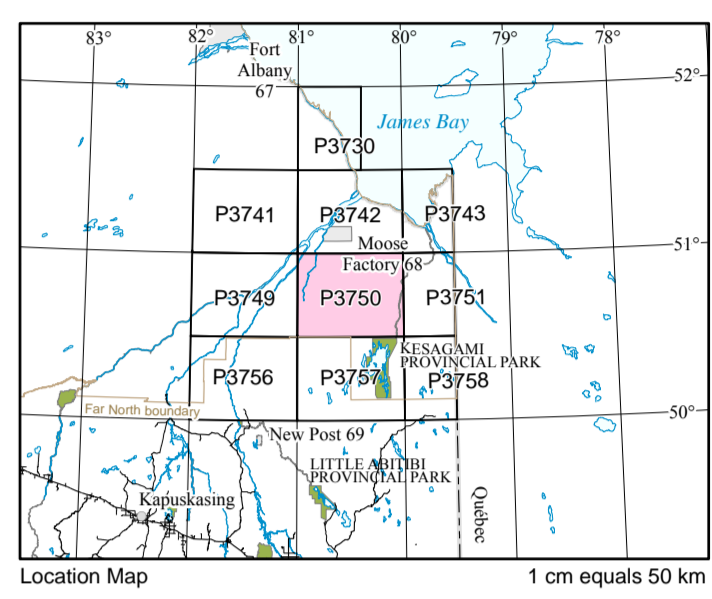


Ontario Geological Survey

MAP P.3750
SURFICIAL GEOLOGY
MOOSE RIVER AREA
NORTHEAST,
NORTHERN ONTARIO

Scale 1:100 000
2000 m 0 2 4 km

NTS References: 42, 19, 10, 15, 16
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SYMBOLS*

- x Bedrock outcrop
Lineament observed on remotely sensed imagery
Base of large landslide or failure scar
Base of terraced escarpment (abandoned glaciolacustrine or marine forefield)
Trend of abandoned or modern beach bar or spit
Trend of large moraine crest
Trend of minor moraine crest; includes De Geer (or washboard) moraines
Area of hummocky moraine
Area of palimpsest moraine
Area of Rogen (or ribbed) moraines
Trend of esker or esker crest
Glacial erosion features carved into the bedrock surface (includes striations, grooves, etc.); direction of ice movement known, unknown
Streamline form with positive relief (includes drumlins, drumlinoid ridges and crag-and-tail features)
Streamline form with negative relief; includes flutes
Large iceberg keel mark
Large sand dune (lacian)
Area of permafrost features; includes patterned ground, palsas, etc.
Area of suspected moraine crest; includes De Geer (or washboard) moraines
Indian Reserve, park boundary
Utility
Road, railroad

*The symbols list applies to Preliminary Maps P.3625 to P.3758. All symbols may not be present on this map.
*As presented on published and unpublished maps.

SOURCES OF INFORMATION

The digital base map is derived from the Ontario Land Information Warehouse, Land Information Ontario, Ontario Ministry of Natural Resources, scale 1:50 000, with modifications by staff of the Ministry of Northern Development, Mines and Forestry. The digital base data is current to January 2011. The map co-ordinates are in UTM zone 17, North American Datum 1983 (NAD83).

Magnetic declination at the centre of the map area was approximately 12°28' W in 2011. Mean annual change is 2.6'E.

Barnett, P.J., Webb, J.L. and Hill, J.L. 2009. Flow indicator map of the Far North of Ontario. Ontario Geological Survey, Preliminary Map P.3610, scale 1:100 000.

Norris, A.W., Sanford, B.V. and Bostock, H.H. 1967. Geology, Hudson Bay Lowlands, Manitoba, Ontario, Quebec and District of Keewatin, compiled. Geological Survey of Canada, Preliminary Map 17-1967. Accompanies Geological Survey of Canada, Paper 67-60.

Ontario Centre for Remote Sensing. Surficial geology, Moose River area, Ontario; unpublished map, Ontario Ministry of Natural Resources, OGRS-425, scale 1:250 000.

Sanford, B.V. and Norris, A.W. 1975. Devonian stratigraphy of the Hudson Bay Platform. Geological Survey of Canada, Memoir 379, 124p.

Skinner, R.G. 1973. Quaternary stratigraphy of the Moose River Basin, Ontario. Geological Survey of Canada, Bulletin 225, 77p.

CREDITS

Geology by P.J. Barnett, K.H. Yeung and J.D. McCallum, 2009.
Preparation of GIS product by K.H. Yeung and J.D. McCallum.
Cartographic production by R. Corcoran.
To enable the rapid dissemination of information, this map has not received a technical edit. Discrepancies may occur for which the Ontario Ministry of Northern Development, Mines and Forestry does not assume liability. Users should verify critical information. Sources include both the references listed here, and information on file at the Resident Geologist's office nearest the map area.
Issued 2011.

Information from this publication may be quoted if credit is given. It is recommended that reference to this map be made in the following form:
Barnett, P.J., Yeung, K.H. and McCallum, J.D. 2011. Surficial geology of the Moose River area northeast, northern Ontario. Ontario Geological Survey, Preliminary Map P.3750, scale 1:100 000.

Users of OGS products are encouraged to contact those Aboriginal communities whose traditional territories may be located in the mineral exploration area to discuss their project.