



Time Flies

Aerial Photography & Landscape Change Prince Edward Island, 1935-2010 Joshua MacFadyen and Alan MacEachern University of Western Ontario

The Pitch On its own, an aerial photograph may seem expressive of a landscape's permanence. But in series, they may be understood as thin slices of time as well as space. Thanks to a convergence of factors – the accumulation of a century of aerial surveys, improved public access to these sources, digital technologies that facilitate processing and interpreting them, and heightened public familiarity with such photos through Google Earth and other programs – aerial photographs offer historians today a captivating means of detecting and depicting landscape change.

The Pay-off Robinsons Island lies off the north shore of Prince Edward Island, the smallest province in Canada. The top photomosaic to the right shows it in 1935 – a mix of fields, forests, and dunes – a year before it was expropriated to become part of PEI National Park. It sat undeveloped until the late 1950s, when the National Parks Branch dreamt of building a scenic highway the length of the park, with Robinsons Island the linchpin. Engineers believed that building a causeway across the island's east end would also increase the tidal flow at the west end, making North Rustico harbour deeper and safer for fishermen. The 1958 mosaic shows Robinsons Island's east end filled in and a swath of roadway cleared.

But nature sought its own path. The redirected tides ate away at the island's west end. Even as the 1974 mosaic documents the park's development of the island – the highway, an amoeba-like campground – it also shows the erosion of a considerable portion of the island itself. Efforts to bridge to North Rustico were abandoned. With the highway a dead end, visitor use of the island plummeted and the campground closed. The 2010 mosaic captures the natural restoration of Robinsons Island in recent decades, and the rise of a substitute island to its southwest.

Some elements of this story were already known. But combining photographs from a single aerial survey into a mosaic and comparing it to mosaics from later surveys offers a compelling way of telling the story visually. More than that, the process brings to light new historical information. The 1958 mosaic, for example, reveals a sand berm on the island's west end that subsequent archival research indicated was a failed recent attempt to halt erosion – indication that Parks Canada should have known it was building a highway on shifting sands.

In the series below we see the "Green Gables" farm, inspiration for the book *Anne of Green Gables*, a year before it was expropriated to become part of the national park. By 1968, the laneway now wound across a stream in more



Green Gables House
picturesque fashion. But that cannot disguise that the land had been transformed by rampant development, including a bungalow court, cottages, and a golf course. These are still present in 2010, but vegetation

has grown much more prominent as the park matured.

A different story of landscape change is revealed at the site of Havre Saint Pierre, PEI's first Acadian village. By 1935, a wharf was all that remained of the fishing community. Despite government efforts to secure the channel for fisheries,



Havre Saint Pierre 1935
the sand won out, vegetation established itself, and by 2010 the bay

contained more land than it had for centuries. Havre Saint Pierre is a coastal site that disappeared because of accretion rather than erosion.



- The Process**
- ✗ **Find** publicly-available digital series of aerial photographs. In Canada, the National Air Photo Library houses more than 6 million photos taken for cartographic, planning, or natural resource development purposes.
 - ✗ **Download** the images for a place of interest and georeference them – that is, define their map coordinates in a Geographic Information System (GIS). This allows comparison of one location over time by treating each series as a layer.
 - ✗ **Make** a mosaic of each series, bringing the best available images for each section of the mosaic to the foreground.
 - ✗ **Interpret** the images. Interpretation of air photos requires expertise, and we would recommend seeking out the help of experts such as foresters and planners. Keep in mind that georeferenced photos are not maps, and scale is inconsistent.
 - ✗ **Repeat** the above process for subsequent series, and then compare the mosaics across time.
 - ✗ **Visit** libraries and archives. The photomosaics will raise questions that require more document-based research.

Thanks to the PEI Aerial Photograph website (www.gov.pe.ca/aerialsurvey/), the PEI Department of Agriculture and Forestry, and the Public Archives and Records Office of PEI for use of the photographs from which these mosaics were composed. Copyright for the 1935 and 1958 series is retained by Her Majesty the Queen; copyright of all other series is retained by the province.