

Mapping European Settlement in Wisconsin: Dates that Public Lands Moved to Private Ownership

William J. Craig *University of Minnesota*

Randy Bixby *Wisconsin Board of Commissioners of Public Land*

Mark B. Lindberg *University of Minnesota*

Tom Haight *Door County Land Information Office*

Europeans moved into the American Midwest because they could acquire rights to the land for farming and other purposes. The Land Ordinance of 1785 provided the mechanism to facilitate that transfer, including the Public Land Survey System (PLSS) that defined boundaries of land that could be acquired. Purchase, homestead, and a myriad of other vehicles were developed to allow people to acquire the rights to the land. Online records for most of those first transfers, the *land patent*, are available from federal Bureau of Land Management (BLM), but a significant portion is only available from the state Board of Commissioners of Public Land (BCPL). This paper describes the process used to collect and map the dates of those initial land transfers on Washington Island, Wisconsin. It starts by describing the PLSS, because that defines the basemap. It documents the various ways that land was transferred from the public domain on Washington Island. It provides documentation on the two basic sources of data on land patents, BLM and BCPL, but also provides insights to other sources when those are inadequate. It closes by documenting the methodology used to transfer this information into map form using Geographic Information Systems (GIS) technology in the Washington Island case study.

European settlement brought the concept of private property to Wisconsin. People came to farm and start new lives. Before European settlement, there was no private ownership. In the late 18th Century, the new US government began transferring ownership rights from the public domain to private ownership. Mapping the dates of those transfers give clues about original accessibility and value of land within each local community, the settlement of the land.¹

Figure 1 is a map of the settlement dates of Washington Island in Door County. It shows

early 1840s settlement by fishermen on the shores of Washington Harbor in the northwest corner of the island. No further settlement took place until 1852, when it spread quickly outward from that initial settlement and was launched in harbors on the west side, southwest, and northeast corner. This spread was associated with lumbering and the beginning of agriculture on the Island. Land on the east coast was the last to go; it is infertile with shallow waters, but today is valued for its scenic water views.

The checkerboard, rectangular nature of this map reveals the nature of the land partitioning scheme in Wisconsin and most of the western United States. That checkerboard is known to anyone flying over the Midwest today. It is a reflection of the original Public Land Survey System (PLSS) conceived by Thomas Jefferson to help the new US government settle western lands. The PLSS partitioned the land into townships and sections before settlement, making it easy to define parcels boundaries and thereby easier to transfer land to private ownership: to *patent* land.

¹ In this article we equate land settlement date with original private land acquisition from the US public domain. The two are not necessarily the same, but are usually closely related. Speculators sometimes purchased land in anticipation of settlement, but they could not anticipate too far in advance because they were responsible for local property taxes and other holding costs. More often in northern Wisconsin, individuals would buy forest land and harvest the trees for lumber or fuel. Once cleared, they would quickly sell the land to a new settler who would be happy to start farming without the bother of cutting and hauling those trees.

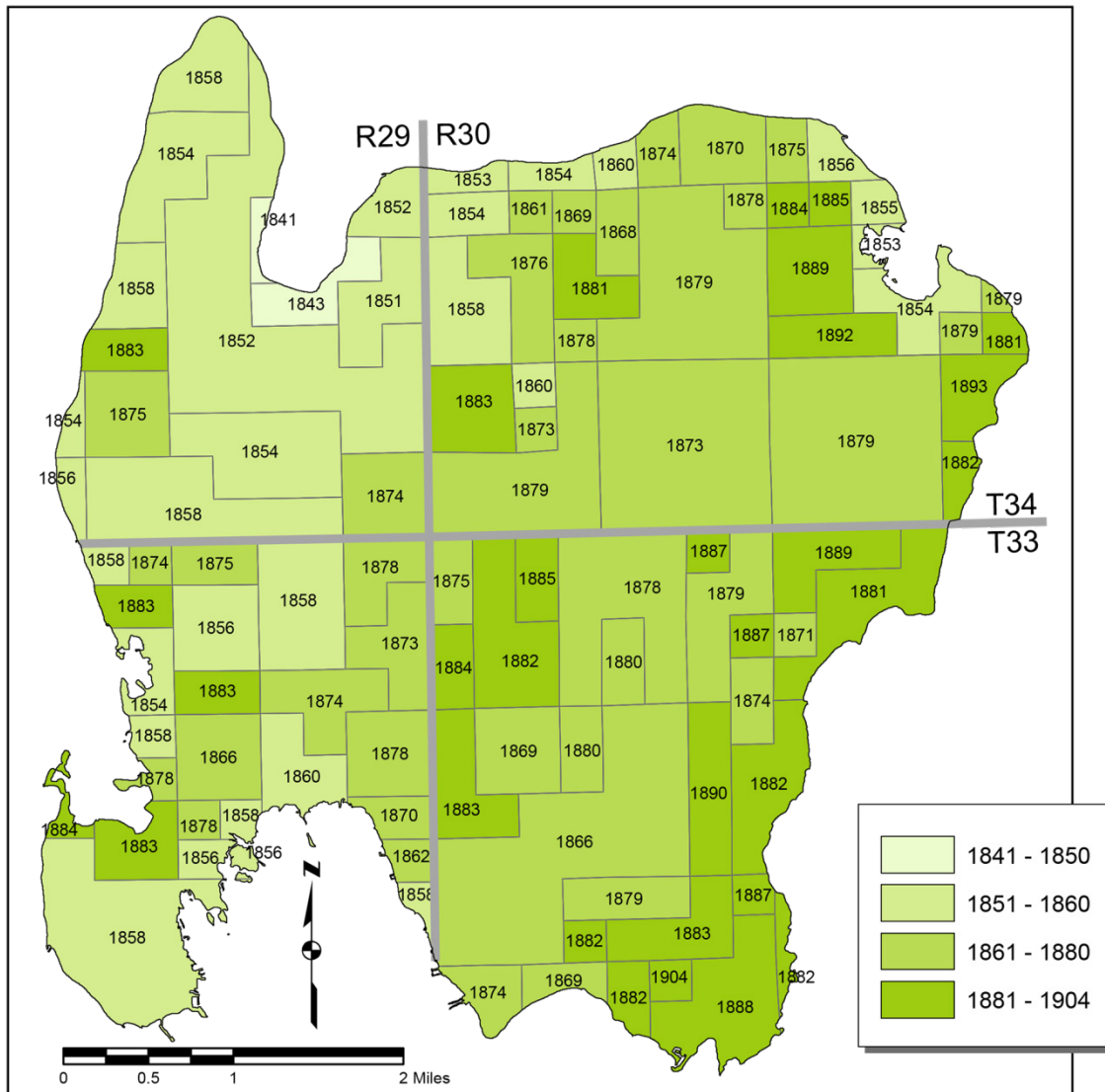


Figure 1. Settlement dates of Washington Island in Door County, Wisconsin

Patent is the name given to the first transfer of public land to private ownership. In today's vernacular, the word is reserved for the government giving exclusive rights to the creator of inventions. Land Patents have the same meaning: giving a deed and ownership rights to the initial private land owner. The owner acquires rights to use the land, pass it on to heirs, or sell it to others.

This article provides an introduction to the PLSS system of partitioning the land and the various ways the federal government created to convey that land to private ownership.² More importantly, it provides guidance on how to access information about the dates and names on those original patents. The Washington Island

² For an overview of federal programs, see *History of Public Land Law Development* by Paul W. Gates, online at <http://hdl.handle.net/2027/uc1.32106000891595>

case study is examined in more detail to illustrate the nature of the patent system. The article concludes with a section on the methodology used to create an electronic version of the original PLSS base map for a particular locale and how to join patent information to that map so it can be mapped using Geographic Information Systems (GIS) technology.

The Public Land Survey System: Partitioning the Land

The Paris Treaty of 1783 brought a formal end to the American Revolutionary War and defined the boundary between British Canada and the new United States Government. The western edge of those formerly British lands had been the Mississippi. This new Northwest Territory provided the home for future settlers—eventually adding six new states to the Union, including Wisconsin.

The government needed to get those lands into private hands for two reasons, one financial and one strategic. Following the Revolutionary War, the new Continental Congress was heavily in debt. It had no power to tax, so selling off their “western lands” to settlers became an important income source. The strategic reason for moving the public lands to private ownership was to encourage settlement of those lands, thereby increasing the territorial legitimacy of the new nation—our “Manifest Destiny.”

The Land Ordinance of 1785 provided the mechanism to achieve both goals. It created the PLSS whereby lands were surveyed before settlement. Both Washington and Jefferson had backgrounds in surveying and understood the need to define boundaries for secure ownership. Jefferson was a member of the Continental Congress and on the committee that defined the system familiar to all of us today.

Surveyors traversed the landscape throughout the 19th Century, delineating townships and sections. The PLSS survey of Wisconsin began in 1832 and continued until after the Civil War. It was a survey based on the Fourth Principal Meridian Extended, with a baseline on the

Wisconsin-Illinois border and a Meridian that runs North/South from near the western end of that line, some 10-12 miles east of the Mississippi. Townships are numbered consecutively north from the baseline. Ranges are numbered East and West from that Meridian. See **Figure 2**. Washington Island sits in four townships.

The township is divided into 36 sections, numbered as shown in the inset of **Figure 2**. Each section is one mile on a side: 640 acres. It is common for present-day roads to follow those section lines.

Sections were subsequently quartered, creating the standard 160-acre parcel that could be purchased or homesteaded by new settlers. Those quarters are simply labeled northeast (NE), northwest (NW), southwest (SW), and southeast (SE). Further subdivisions can follow, e.g. splitting in half (80 acres) or quartering again (40 acres). This is shown graphically in **Figure 3**. A parcel can be legally owned that is simply described as the E ½ of the SE ¼ of this section.

Surveyors took notes³ as they traversed the landscape, carving out the familiar township-range-section system we see today.⁴ Subsequently township-level maps were created from those notes. These maps are called *plats*, because they portray the legally designated partition of the land by the PLSS. That system and those plats form the geographic basis for land ownership across the western US.

Individual township plats look like the inset on **Figure 2**, but with more detail about the local

³ Images of those original field notes for Wisconsin are available at <http://digioll.library.wisc.edu/SurveyNotes/SurveyNotesHome.html>. This site, created by the Wisconsin Board of Commissioners of Public Lands and the University of Wisconsin Digital Collections Center, also has plat maps created from those notes.

⁴ Background material on the PLSS as it operated in Wisconsin is nicely documented on <http://digioll.library.wisc.edu/SurveyNotes/SurveyInfo.html>. Additional information about PLSS is available on the State Cartographer's Office website at <http://www.sco.wisc.edu/plss/public-land-survey-system.html>.

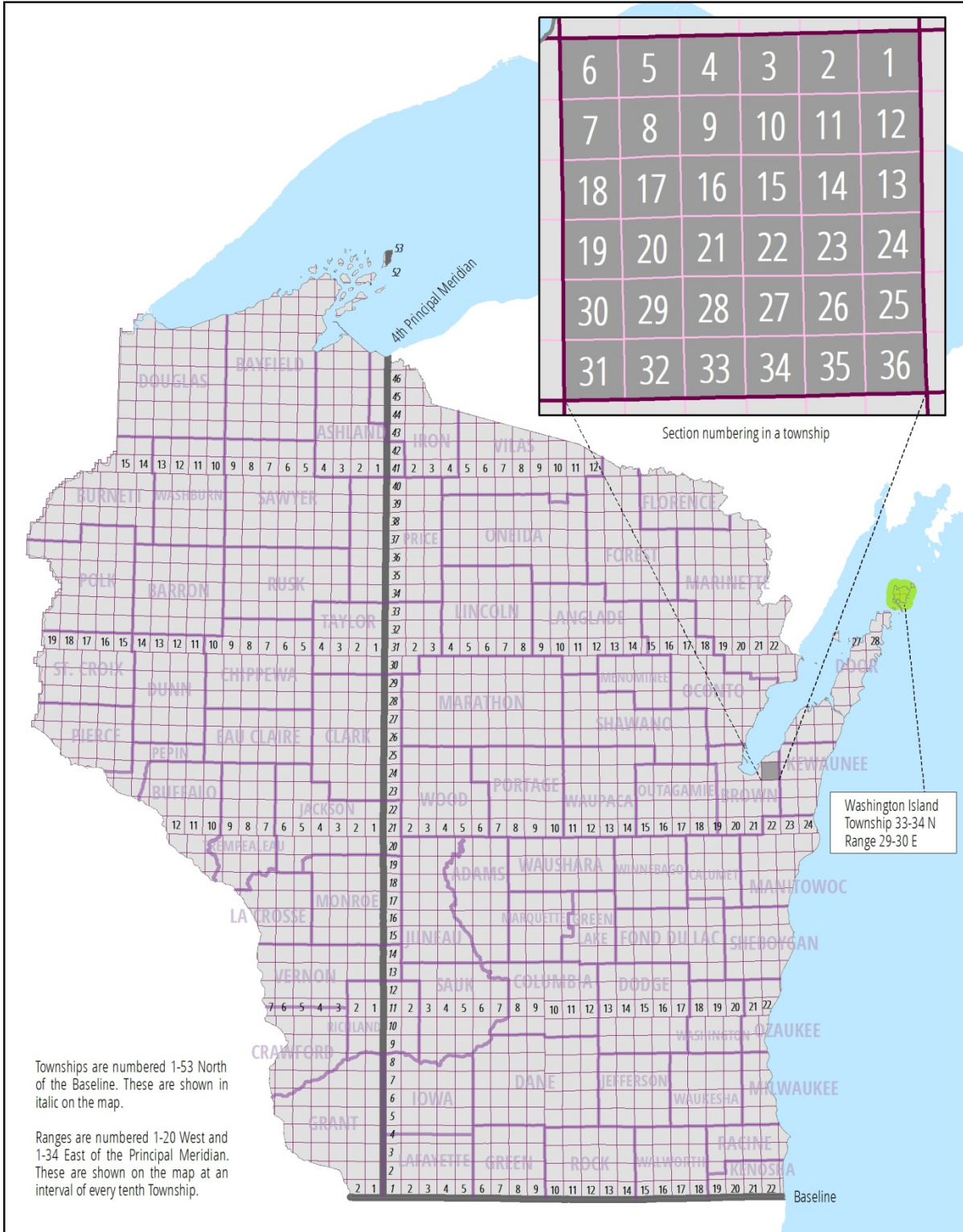


Figure 2. Wisconsin survey townships

landscape including natural and man-made features and water bodies encountered. When a surveyor encountered a significant body of water, he would create differently shaped parcels labeled *Government Lots*. He would set a post where the section line intersected the shoreline. Then he would trace the shoreline noting bearings and distances in the *Meander* section of his survey notes. Cartographers creating the plats from those notes would later take those notes and create and number government lots on the plat, calculating the area of each using trigonometry, and entering that acreage to the plat.

NW 1/4 of NW 1/4	NE 1/4 of NW 1/4	NE 1/4	
SW 1/4 of NW 1/4	SE 1/4 of NW 1/4		
N 1/2 of SW 1/4		W 1/2 of SE 1/4	E 1/2 of SE 1/4
S 1/2 of SW 1/4			

Figure 3. Subdivisions of a section

Multiple government lots could be created within a section as shown in a zoomed-in example from Washington Island (**Figure 4**).⁵ Section 25 is composed of eight separate units: five government lots (numbers 1-5), and three standard partitions (S 1/2 of SW 1/4, SE 1/4, and SE 1/4 of NE 1/4). Collectively, these geographic units are called the *Aliquot* parts of the section.

Note that government lots usually have N-S or E-W borders that match quarter-quarter section boundaries. Often those boundaries were crossed when the government lots became too

⁵ Note that lots are numbered in a clockwise direction. Typically new lots were created at each quarter-quarter section boundary.

small.⁶ For example, Government Lot 1 contains both the NE 1/4 of NE 1/4 and 24.32 acres of land adjacent the water; lot 5 combines two narrow bits of lakeshore, both in the NW 1/4 quarter, to make a 22.37 acre parcel.



Figure 4. Portion of GLO Plat of Township 34 N, Range 29 E showing section 25 on Washington Harbor

All land ownership, urban and rural, is tied to the original PLSS. For example, a city subdivision will always reference a PLSS section or township corner as the beginning point laying out blocks and lots. Counties across Wisconsin and, indeed across the western US, are responsible for locating and maintaining those original section corners.⁷

Survey work ran under the US General Land Office (GLO).⁸ The GLO was also responsible for

⁶ This is not always true. Some government lots are as small as 0.01 acres.

⁷ It makes no difference that a corner might have been placed out of alignment from the theoretical square system by the original survey.

⁸ A Surveyor General, answering to the GLO, had the lead responsibility in each region. The men who did the actual survey work were deputized and worked under contract for the Surveyor General. For Wisconsin this office was held in Cincinnati, then Dubuque.

conveying those surveyed lands into private ownership—patenting the land. GLO administered Land Offices across the country, opening them as land became available for settlement and closing them when all the land was taken. GLO operated from 1812 to 1946 when it merged with the United States Grazing Service to become the Bureau of Land Management (BLM). The BLM has scanned the original plats and patents, making them available on the Internet.⁹

Case Study – Washington Island, Door County

Patent dates for Washington Island are portrayed in **Figure 1**; the first parcel of land was sold in 1841 and the last in 1904. The dates and nature of land patents tell a rich story of the history of Washington Island. Moreover, it illustrates the national story of how the federal government used its land resource to support national policies of settlement, land improvement, infrastructure, and education.

Beneath the map of dates is a story of data collection. The map was created in a two-step process. First patent data was collected for every piece of land on the Island and put in a spreadsheet. Second, a basemap of the Island was created and used to produce **Figure 1**. This section will focus on the patent data.

When this work was started, it was naively assumed that all patent data would be on the GLO website. Using a section-level map of the Island to locate patents, it was quickly determined that many holes existed. Those holes represented land given to the state of Wisconsin for subsequent dispersal to private owners; information about that data was supplied by the state Board of Commissioners of Public Land (BCPL) in Madison.

⁹ The website is <http://www.gloreports.blm.gov>. As noted above, original survey plats are also available at <http://digicoll.library.wisc.edu/SurveyNotes/Search.html>. Plats on that site were scanned nearly 20 years ago at slightly lower resolution and in black & white, but sometimes include additional plats not on the BLM site.

In total, seven different vehicles were employed to transfer Island land to private owners (**Figure 5**).¹⁰ Four of those methods were direct transfers from the federal government and documented on the federal GLO website. Three other vehicles used the state as an intermediary; the BCPL has those records (**Table 1**).

Land Patent Data available from the GLO and BLM

While all Island land is in the PLSS, the federal government has records of only 70 percent of the patented land. These records represent the land patented to individuals directly by the federal GLO. They are available at the GLO website. Here are the four types of patent vehicles used on Washington Island, the rationale and statute for each, and how each played out on the Island.

Purchase. The Land Act of 1820 (3 Stat. 566) set the price of land at \$1.25 per acre and the standard minimal sale at 80 acres. Federal land offices were established in local areas to handle the sales. Washington Island's early sales transpired in Green Bay, but the office was moved to Menasha in the mid-1850s. The first sales were on the shores of Washington Harbor in the Island's northwest corner. It is the Island's best deep water port. The first buyers were commercial fishermen. About one-quarter of Washington Island land ultimately went to private hands via purchase.

Military Land Warrant. The Scrip Warrant Acts of 1850 (9 Stat. 520) and 1855 (10 Stat. 701) gave warrants to veterans of the War of 1812 and the various Indian wars. By 1850, a

¹⁰ The underlying granularity of Figure 5 is a reflection of the basic data record. A full section of purchased land in the GLO database shows no internal granularity; a half-section will appear as a rectangle. Data requested from BCLP lands was listed by quarter-quarter section or government lot. The nature of that query and the subsequent response explains the internal boundaries shown within Canal and Swamp land regions of Figure 5. The query/response approach is appropriate, because BCPL records are organized by township, range, and section. In Figure 5, unlike Figure 1, internal boundaries were not merged out.

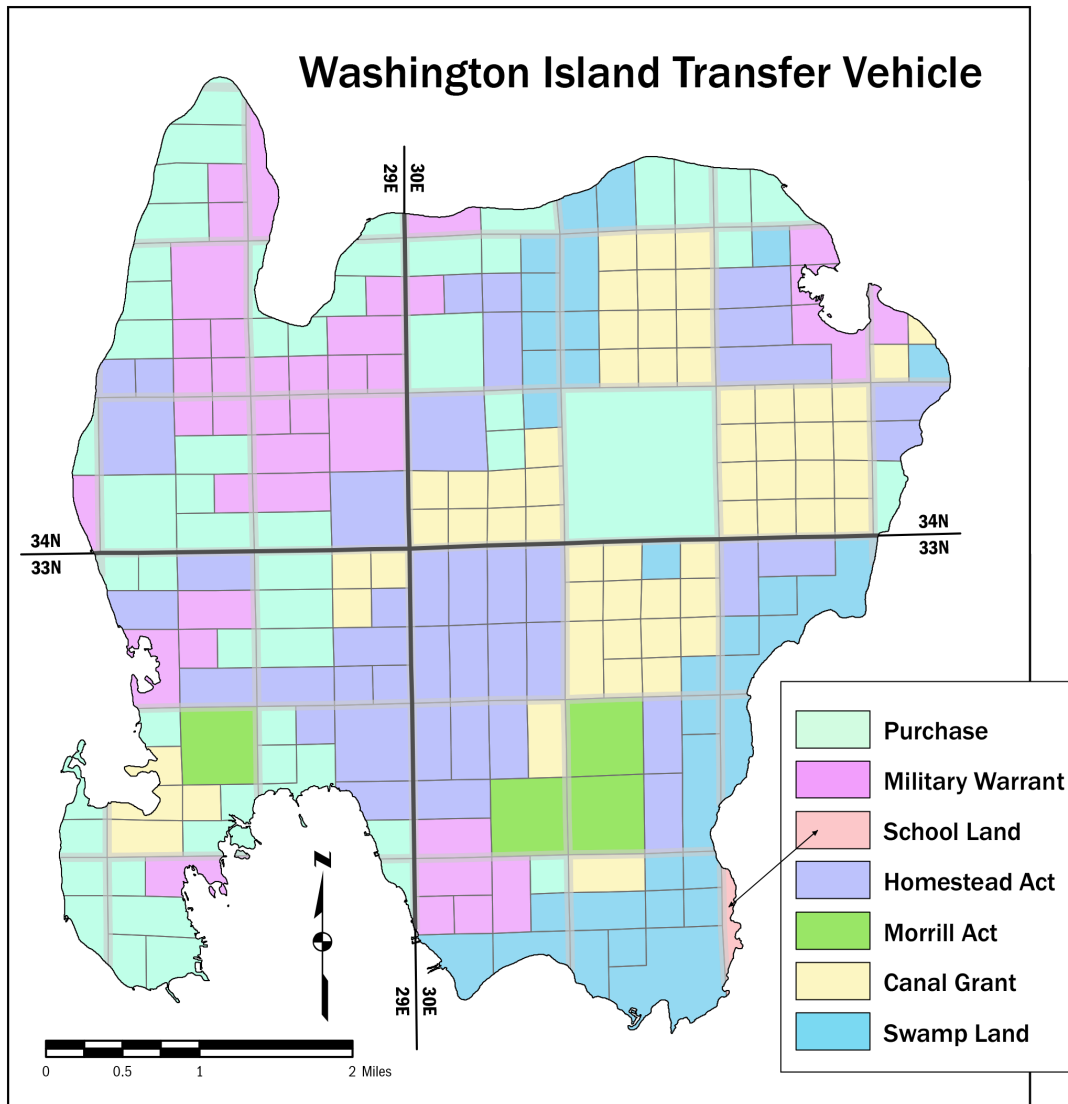


Figure 5. Land transfer vehicles used on Washington Island

veteran of the War of 1812 was in his late 50s and unlikely to start a new life. These warrants were like a pension for those veterans. They or their survivors sold the warrants to brokers who sold them to younger families or speculators.

Warrants became available during the early days of settlement on Washington Island, complementing purchase as a means of patenting lands around the three other harbors and the fertile lands on the western side of the Island. One early settler, James Crow and his family, acquired nearly 1,800 acres, 62 percent by direct purchase and the rest with warrants they acquired from others.

Homestead. Homesteading is probably the most well-known way for individuals to acquire land, but the Homestead Act (12 Stat. 392) was not passed until 1862 and the first application on Washington island was not until 1869.¹¹ Less than one-quarter of Washington Island land went to individual homesteaders. Homesteading was a new tack by Congress to make 160 acres of land

¹¹ By coincidence, that application included the farm William Craig (lead author) now owns on Washington Island. The original homesteader, already an Island resident, received title in 1874. He sold it to a broker in Chicago, who subsequently sold it to the Danish immigrant whose family farmed it until 1946.

Patent Vehicle	Acres	Percent of Island	Dates Used	Median Year
Purchase	3,465	25%	1841-1884	1858
Military Warrant	2,239	16%	1851-1866	1854
Homestead Act	3,195	23%	1869-1893	1882
Morrill Act	640	5%	1866-1866	1866
School Land	21	<1%	1882-1882	1882
Swamp Land	1,748	13%	1860-1904	1881
Canal Grant	2,548	18%	1878-1883	1879

Table 1. Land transfer vehicles used on Washington Island

available at no cost, aside from a small filing fee, to those who would clear the land and live on it for at least five years. Congress received no money from this transaction, but it gained the satisfaction of settling the frontier with “virtuous yeomen.” Washington Island homesteaders tended to acquire land in the south-central portion of the Island, good farmland on the edge of the land already taken by purchase or warrant.

Morrill Land-Grant Act of 1862. The Morrill Act (12 Stat. 503) was intended to support agricultural and mechanic colleges. It gave land to states to support Land-Grant Universities, like the University of Wisconsin. State land allocations were based on the number of members of Congress, 30,000 acres per member. Many eastern states lacked sufficient public land to meet their quota. Some 640 acres of Washington Island land was given to the states of New Jersey and West Virginia and sold to private individuals in 1866. Because these were interstate transfers, they are listed on the GLO website; BCPL has records of Wisconsin Agricultural College land grants, but there were none on Washington Island.

Land Patent Data available from the Wisconsin BCPL

Much land was transferred from the federal government to the states to support local development. The state was then responsible for selling or granting the land to a private party. Lands to be sold were advertised in local newspapers. In the 19th Century the Commissioners often traveled around the state to accept applications for purchase of lands. Land

grants to railroads and canal companies required periodic evidence of progress toward completion, so these were doled out in portions as their work progressed. Records of those transactions are kept at the BCPL in Madison.

School Lands. The Land Ordinance of 1785 set aside all lands in Section 16 of every township to support local schools. Upon Wisconsin’s statehood in 1848, title to Section 16 went to the state. Proceeds of the sale of those lands were deposited in the Common School Trust Fund, with earnings from that fund distributed annually to support “common schools,” now called K-12. Only one small piece of Washington Island, 20.7 acres in the far southeast corner, falls within Section 16 of any of the four townships that cover the Island. Those lands were sold to an individual in 1856, but he defaulted and the land was finally transferred to the state in 1882.

Swamp Land. The Swamp Land Act of 1850 (9 Stat. 519) gave Wisconsin and other state lands that were 50 percent swamp or more as identified in the original public land survey. The goal was to encourage reclamation of wetlands, reduce flooding and yield more productive farmland. On Washington Island, this included real swamps and marshes, but also much shoreline. Those swamp lands are now some of the most valuable land on the island. Roughly 13 percent of the Island is in this category.

Canal Grant. Land on Washington Island was given to a private company to capitalize work on a channel cutting through the Door Peninsula at Sturgeon Bay. This is one example of indirect federal funding to develop infrastructure. Railroad land grants are well known, but canals were also supported. In 1866 Congress granted 200,000 acres

to the state of Wisconsin to pass to the Sturgeon Bay and Lake Michigan Ship Canal and Harbor Company.¹² Wisconsin lands in odd-numbered sections around Green Bay were identified for potential sale, but withheld awaiting progress on the canal. Work started promptly, but the Peshtigo Fire of 1871 destroyed much of the forest land to be sold and the Panic of 1873 brought a financial weakness that further delayed the work. By 1878-79, the company had made sufficient progress to receive the third and fourth installments of its land allotment.

The BCLP has records of what lands were transferred to the company—over 2,500 acres of Washington Island—but no records about the subsequent sale by the Company to individual settlers of that land. The Door County Register of Deeds has the only known records of sales from the canal company to individuals, all in the original paper format.¹³ The canal was completed in 1881 and sold to the federal government in 1893.

Finding Patent Data

As indicated in the Washington Island case study, federal and state sources are excellent ways to identify land patent data. This section will provide more detail on the GLO website and the BCPL. Some guidance is given for finding patents for lands not available from either of those sources.

General Land Office (GLO) Website

The GLO not only surveyed the land in the western United States, it was also responsible for

¹² Holand, Hjalmar, R. 1917. *The Sturgeon Bay Canal*, Chapter 17 in *History of Door County*, Chicago: The S.J. Clarke Publishing Company. Online at <http://content.wisconsinhistory.org/cdm/compoundobject/collection/wch/id/33982>

¹³ The lead author was able to identify only two of those sales to individuals using the county Tract Index, one occurring in 1880 (80 acres) and the other in 1883 (76 acres). Those sales are dated accordingly in Figure 1. Other canal lands on Figure 1 are dated to the year the company took possession from the state: 1878 and 1879. The Grantor-Grantee Index was invested later and proved much more complete.

moving it into private hands for settlement. During its period of peak activity, GLO operated land offices in multiple locations, closing older offices as land was fully patented and opening new ones on the frontier of settlement. The GLO website has information on over 7.5 million records of land transactions, covering over one billion acres across the western United States. The GLO website covers 70 percent of Washington Island land.

A search for patents in a particular section of land will yield information on the names of the people involved, the date of the transfer, and a description of the land transferred. A search for patents in one section of Washington Island produced the information presented in **Table 2**¹⁴.

In this case, four parties collectively acquired 560 acres in section 7, leaving 80 acres not accounted for: the eastern half of the northeast quarter (E½NE¼). This is a typical situation, where the GLO website accounts for most of the patents, but not all. The BCPL has the record of what happened to remaining 80 acres.¹⁵

Three different vehicles were used to transfer land to these four parties. Clicking on the *Accession* link provides the details of each. The first group (Lathrop, Daughtry, and Gibbs) acquired their land through use of a Military Warrant. Clicking on the *Image* displays a scanned image of the original hand-written patent with text stating that Frances Daughtry was Gibbs widow and that he had served with the Georgia Militia in the War of 1812. It goes on to say that Daughtry assigns her Warrant to Curtis G. Lathrop. Lathrop thus is the patentee for that parcel.

In the second row, Lathrop purchases an additional 160 acres via the Morrill Act of 1862. As noted earlier, the Morrill Act gave each state 30,000 acres of federal land for every member of Congress it had at that time with lands to be sold to support their colleges of agriculture and

¹⁴ This is an abbreviated table. The full table contains other information that is not relevant here.

¹⁵ In this case, it was land given to a company to capitalize construction of a canal at Sturgeon Bay.





Image	Accession	Names	Date	Section	Aliquots
	MW-0078-444	LATHROP, CURTIS G, DAUGHTRY, FRANCES, GIBBS, ELHANAN	7/2/1866	7 18	S½SW¼ N½NW¼
	AGS-0233-334	LATHROP, CURTIS G	11/20/1866	7	SE¼
	WI1780__037	WESTBROOK, JOEL	12/10/1869	7 7	E½NW¼ W½NE¼
	WI1790__280	WICKMANN, WILLIAM	7/10/1883	7 7	W½NW¼ N½SW¼

Table 2. Partial patent information on GLO website for Township 33, Range 30, Section 7, Washington Island

mechanic arts. The Eastern states had no federal land, so those states could select land in Western States. Lathrop's 160 acres was land selected by the state of New Jersey.¹⁶

Westbrook and Wickmann homesteaded their land.¹⁷ They were required to live on the land and cultivate for five years before they were granted title. The listed dates are when the homestead was filed. Westbrook's homestead claim was filed in 1869. He qualified and was granted a deed which he registered in Door County five years later.

The GLO website is very user-oriented. A *Reference Center*¹⁸ (provides both guidance on how to use the site and documentation on the history and meaning on its components. Some patents are trickier to find than what we have presented in our Washington Island example; e.g. patents for pre-survey parcels. A variety of search tips are provided in the Reference Center.

A section on *Patents*¹⁹ gives a nice overview of the types of land patents issued. Some are simple like Cash Entry (Purchase) and Homestead.

Others are more complex; for example Military Warrants were granted as early as 1788, presumably for veterans of the American Revolution. Private Land Claims allowed people to retain land they owned "while the land was under the dominion of a foreign government," i.e. before it was acquired and surveyed by the United States.

A separate appendix on *Title Transfer Authorities*²⁰ provides a detailed list of acts and treaties, along with statutory reference, that authorized the transfer of public land to individuals. Nearly 80 different authorizations are listed. Many may be encountered in Wisconsin.

Individual patents may need to be scrutinized to understand the nuances of these transfer vehicles. Ashland County provides some interesting examples of this. Nearly 1,800 acres in that county were given to people whose claims of Private Land lost in "Louisiana"²¹ were confirmed by Congress. Another 118 acres were given to the Santa Fe Railroad in exchange for land given over to a National Forest.

¹⁶ The GLO tracked this case because the federal government was involved in an interstate transaction.

¹⁷ One of the authors of this paper, William Craig, lives on the Westbrook homestead. Westbrook had the first homestead on Washington Island.

¹⁸ Top of homepage. The URL is <http://www.glorerecords.blm.gov/reference/default.aspx>

¹⁹ The URL is http://www.glorerecords.blm.gov/reference/default.aspx#id=02_About_Our_Documents|01_Patents

²⁰ The URL is http://www.glorerecords.blm.gov/reference/default.aspx#id=05_Appendices|03_Title_Transfer_Authorities

²¹ No doubt this is a reference to land well beyond the present state of Louisiana, probably lands included in the Louisiana Purchase.

Wisconsin Board of Commissioners of Public Land (BCPL)

Most of the Wisconsin land patents not found on the GLO website were for land that had been granted to the state via several Acts of Congress. This land was then sold by the state or transferred to a company building infrastructure. Records of those State Patents are maintained by the BCPL, which has information on who received that land, the date of the transfer, and conveyance instrument through which the transfer was made.

Through these Acts of Congress, Wisconsin received approximately 5 million acres of school trust land and 6 million acres of non-trust lands. Proceeds of the sale of Trust lands support public education in the state, such as the common (K-12) schools, a seminary of learning (university), and an agricultural college. Non-trust land grants were for projects such as railroads, canals, and a military wagon road.

Most trust lands were sold directly to individuals by the state. The BCPL has records related to those sales, which were approved by the School Land Commissioners. Information about BCPL records on trusts lands is presented in **Table 3a**.

Most non-trust lands were conveyed to private companies who then sold that land to capitalize their work. Land was doled out as work progressed. In the case of the Canal Company, for example, their 200,000 acres were released 50,000 acres at a time. As work progressed, they received the next 50,000 acres. The last two bundles of land were in 1878 and 1879.

The BCPL was not directly involved in the conveyance of railroad or canal lands; these were channeled through the Governor's Office to the Secretary of Interior, who approved the grants. However, the BCPL archives hold transcripts and indexes of the railroad grants. See **Table 3b**.

State Land Patents are not available on the web. Researchers who wish to access these records in the BCPL archives may do so by visiting their office in Madison or by sending a written request for copies to Randy Bixby, the

Land Records Archivist.²² At this time, access to State Patents is only through the legal land description (Section, Township and Range). A name index is being developed.

County Register of Deeds²³

County records identify sales from canal companies and similar entities to individual buyers, if that is of interest.²⁴ Those sales are recorded in the local Register of Deeds office. In the 18th Century copies of these deeds were transcribed into books as they came in chronologically. They are indexed in Grantor-Grantee Indexes, each listing seller, buyer, book number and page, and legal description. The Grantor Index is organized alphabetically by seller name; Grantee Index by buyer name.²⁵ Each index is updated when a new deed is registered; i.e., they too are organized chronologically.

²² Ms. Bixby is one of the authors of this report. Her contact information is:

Randy Bixby, Land Records Archivist
Board of Commissioners of Public Land
101 E Wilson St., 2nd floor
Madison, WI 53703
Randy.Bixby@wisconsin.gov

²³ It is worth noting a few points about Register of Deeds records. First, some newer counties have split from older counties and may not have received all the older records. Second, most counties will have a Tract Index that is an index to deeds by location, but the Tract Index may not be complete for earlier years. Third, county Register of Deeds may have computerized their more recent data, but older records are accessible only in the original paper form.

²⁴ To find sales from the Sturgeon Bay Canal Company, I searched the S-section of the Grantor Index starting in March 1878, the date when Washington Island land was first given to the company to sell. On Washington Island, most of those sales proved to be to mostly to speculators, so one or more additional searches would be necessary to learn the names and dates of the first settlers.

²⁵ The Grantor Index was searched after these maps were developed. They provided quite useful in identifying private buyers of from the Sturgeon Bay and Lake Michigan Ship Canal. Two things made that search easy: 1) nearly 80% of those lands were sold in three major blocks and 2) sales by the canal company were easy to find in S-section of the Grantor index where seller names were hand-written and this name was squeezed into the relative small box provided on the form.

Table 3a. Trust Fund Lands		
Lands given to the state to sell and retain proceeds for the public good		
Vehicle Name	Acres	Description
Common School Lands	1,004,470	Section 16, as required in the Land Ordinance of 1785. ²⁶ Proceeds to be used to support K-12 Public Schools.
Swamp Lands	3,357,693	Swamp Land Act of 1850. ²⁷
500,000 Acres	499,662	The primary purpose of the Preemption Act of 1841 was to allow pre-PLSS settlers rights to their land. Sections 8 & 9 of the Act gave states 500,000 acres to be used for "internal improvements." The State of Wisconsin petitioned Congress to allow these lands to be used to support education. The petition was approved and the lands were added to the school trust lands.
Morrill Land-Grant Act of 1862	240,005	Sometimes called the Agricultural College Act of 1862. Funds support UW College of Agriculture.
University Land Acts	91,981	1838 "Seminary of Learning" 1854 "University Land" given to Wisconsin in lieu of any salt lands. "[P]ublic land ... for the benefit and in aid of the university."

Table 3b. Non-Trust Fund Land Grants		
Lands given to the Governor to support "internal improvements."		
Vehicle Name	Acres	Description
Railroad Lands (various)	5,000,000	Odd-numbered sections six miles either side of the rail line (later 15 miles). Examples include: <ul style="list-style-type: none"> • Wisconsin Central Railroad • West Wisconsin Railway • North Wisconsin Railway • Chicago and Northwestern Railway • Chicago, St. Paul, Minneapolis and Omaha Railway
Sturgeon Bay Canal (1866)	199,631	Sturgeon Bay and Lake Michigan Ship Canal and Harbor Company as described above.
Rock River Canal (1843)	110,984	These lands were sold, but the canal was never built. Some of those lands added to the 500,000 Acre Grant and later became part of the Common School Fund.
Military Wagon Road Act of 1863	301,931	This grant was to build a road from Fort Howard, near Green Bay, to Fort Wilkins on Lake Superior (30 Sections; State sold 7,071.22 acres to individuals, the balance to the construction company of Fox and Weston.
Capitol Lands (1846)	6,400	Congress gave the state 10 full sections. Sales of those lands were used to support construction of the state capitol building.

Tables 3a and 3b. Land records available at the Wisconsin Board of Commissioners of Public Lands

²⁶ Includes substituted land provided by Congress in 1849 and 1859 to indemnify the state for Section 16 lands already settled or pre-empted in the City of Racine (640 acres) and elsewhere the state.

²⁷ Includes substituted 105,610 acres added in 1855 and 1867 to indemnify the state for swamp lands that had been sold by the United States or claimed by Military Land Warrant.

Other Sources

There are three primary types of land that are not covered by the above sources: early private land holdings, Indian Reservations, and military reservations. Some guidance is provided for each.

Early private land holdings were often honored, such as the long lots created by French settlers in Green Bay and Prairie du Chien. Few records appear on the GLO site.²⁸ One potential source of information about these private land holdings is the *American State Papers*, a 38-volume published compilation of executive and legislative records dating from 1789 to 1838. Volume 8 lists approved claims against public lands, but it is not indexed by location.²⁹

Indian Reservations were pieces of land that went to tribes, some later dissolved with ownership transferring to individual Indians with only those individual patent records appearing on the GLO site. Reservation boundary information is held by both BLM and the Bureau of Indian Affairs.

Military Reservations like Howard in Wisconsin and Snelling in Minnesota were established shortly after the War of 1812, before surveys. Military reservation lands were withdrawn from the base of lands for sale and are listed yet on the GLO website.³⁰ Some of the surveys bypassed the military reservations entirely or treated them superficially. Few patents are available from the GLO website or BCPL office for these lands.

²⁸ Some of those patents can be located on the GLO site by ignoring section number and searching at the township-range level. Some of the original long lots within Green Bay can be found by looking at the 1822 Private Claims at Green Bay plat on the GLO website, noting certificate numbers on that map and searching for those numbers as Document numbers in the in the Miscellaneous section of the GLO patent search.

²⁹ For more information, see <http://www.archives.gov/publications/prologue/2005/su/mmer/state-papers.html>

³⁰ The BLM is currently digitizing military reservation conveyance documents for the GLO website. This and other useful information was provided by Daniel Flemming of BLM in June 2015.

When this guidance is insufficient, we recommend two potential sources: 1) county records and 2) BLM. The BLM has other data not available on their website and is willing to assist.³¹

Mapping the Patent Data: Methodology

Patent data can be mapped using GIS. Two steps are required. First, one needs an electronic basemap. For the purpose of this paper, that base map is a digital replica of the original PLSS plat map. Second, one needs to match the patent records to the polygons of the base map. From that point, it is possible to map dates, patent vehicle, even the name of the original patent-holder – anything that is contained in the patent records.

Door County's Digital PLSS Map

Door County's GIS/LIO (Land Information Office) maintains a PLSS basemap of quarter-quarter sections that is built from the county's more detailed digital parcel map, which is maintained by the Real Property Lister for the county using AutoCAD. Parcel boundaries are tied to the original PLSS making this an appropriate workflow. In other words, the PLSS basemap was not derived by digitizing GLO plats, but is based on the coordinate geometry of the parcel deed descriptions and surveys. The county's parcel map is maintained for current land ownership and changes are not integrated into the database. (The database has been archived annually since 2000, and therefore a limited historical record could be constructed.) Both parcel and PLSS databases are available in Esri shapefile format.

Door County maintains its own digital parcel map which is tied to the county's survey control at the section level. Parcel surveys and descriptions are placed within their appropriate section in the database. Creating the PLSS map from the parcel map was a multistep process

³¹ See www.glorerecords.blm.gov/support/

performed by the county GIS/LIO Office. The parcel map utilizes the county's parcel numbering system that includes township, range, and section numbers as well as digits for quarter-quarter sections. Therefore, the initial step consisted of dissolving the parcels based on their identification numbers to the quarter-quarter section.³²

Since Door County is rural, this initial dissolve created over half of the ultimate PLSS coverage. Gaps created by subdivisions, condos, or parcels crossing quarter-quarter lines remained, and required additional editing in order to complete the database. The shoreline edge is based on the County's original digital base map created from 1994 imagery; parcel boundaries incorporated that edge. The PLSS database is updated periodically to keep it into alignment with the parcel database which is updated for changes in descriptions or surveys.

Creating Washington Island's Patent Basemap

The fundamental task for creating the patent basemap used for our project consisted of matching the patent records spreadsheet with the Door County's PLSS shapefile. Ultimately each record in the spreadsheet, referring to a single patent or purchase, was matched to one or more records in the quarter-quarter section PLSS database depending upon the size of the original patent.

There were multiple issues in matching patent records to the plat map. One issue was the different naming schemes; e.g., GLO uses names like SE $\frac{1}{4}$ -NW $\frac{1}{4}$ (read as "SE quarter of the NW

³² For example, William Craig's 5-acre parcel on Washington Island is numbered 02803-07-33-30-12-E where 07 is the Section number, 33 is the township number, and 30 is the Range number. The digits 1 and 2 represent NE quarter and NW quarter-quarter, respectively (to continue the system, 3=SW and 4=SE). The letter "E" separates Craig's parcel others in the quarter-quarter section. The first five digits identify the town of Washington (028) and a reference township within that town (3 out of the 4 survey townships that comprise the town).

quarter"), something the county would label 2-4 (read as "NW quarter, SE sub-quarter")³³. The quartering identifiers are given in different nomenclature (text vs. numbers)—and in reverse order (GLO lists major quartering second.). A second issue is a one-to-many problem; the county PLSS map is based on single quarter-quarter sections, whereas a single patent can cover multiple – for example the SW quarter of a section contains four quarter-quarters. A third problem was posed by government lots.

In a manner similar to the county's production of the PLSS shapefile from parcels, the process consisted of either matching records directly, when the patent or purchase consisted of a quarter-quarter section, or dissolving the quarter-quarter sections in the PLSS database into larger aggregates. Matching was facilitated by creating a new identifier (ID), specifically for the process, consisting of township, range, and section numbers, plus digits for quarter and half sections plus quarter-quarter and quarter-halves. Unique codes were also created for government lots. The new IDs were generated easily from existing fields in both data sets. Matching was performed iteratively starting with the largest match possible (for Washington Island) which was a single full section and worked downward toward quarter-quarter sections. Already matched records were denoted and removed from the pool for later iterations (e.g. smaller polygons).

Approximately three-quarters of the spreadsheet records were matched using this process and the remaining quarter were matched manually. By not displaying already matched lots on the screen, the manual matching proved to be quite simple in most cases because they were sparse. For example, an unmatched record in the spreadsheet representing half a quarter section, was easily matched up to two quarter-quarters from the PLSS data shown in map form on-screen—especially easy if it was the only remaining match needed for that section. Although "automatic" matches were possible for

³³ See footnote 32 for details on how digits 1-4 are used to identify quarters.

government lots, they were matched manually,³⁴ which was also relatively easy because they line the shoreline of the island and were easy to locate. The 344 lots (quarter-quarter sections and government lots) in the PLSS shapefile database were dissolved and matched to the final 230 land conveyance records in the patent spreadsheet.

Conclusion

This paper was written to assist counties, organizations, and individuals across the state in mapping their original settlement patterns. It assumes that settlement is synonymous with land patenting, the initial transfer of public domain land to private ownership. Certainly there are exceptions where squatters settled before the public land survey or speculators bought land far in advance of settlement, but the general pattern is of land patent coinciding with settlement dates.

The paper is based on work in Washington Island, Door County Wisconsin. All land on the Island was partitioned under the PLSS. There were no prior settlements or reservations that might disrupt the standard checker-board partitioning seen across the Midwest and other Western states. As an Island, there were a large number of irregularly shaped parcels on water's edge, but even these tend to follow the checkerboard pattern on their inland boundaries.

We were able to find patent data for all land parcels on Washington Island, most data indicating the name of the individual who first acquired the land and the date of acquisition. The Canal lands were an exception. The company received those lands in March 1878 and January 1879. The value to them came in selling the lands to individuals. Neither the GLO nor the state has information about the sale dates or the names of the individuals acquiring those lands. The county Register of Deeds office has records of subsequent sales, but most of those

were to speculators. Two of the smaller sales were found in the Tract Index and included in **Figure 1**. All other canal lands are shown by the date land was transferred to the company. Land transfers to railroads will face the same issue.

Readers working in areas of Indian Reservations, military reservations, and pre-survey settlement will have additional problems. These lands were excluded or touched lightly by the surveyors. Others were nicely surveyed, but patents are difficult to identify because they followed a process outside the norms identified here: e.g., direct transfer of public domain land to an individual from the federal government. Those lands will require a higher level of research. County governments may have some of that information. The BLM has patent data not included on their GLO website and is prepared to assist in the research.

Published by the Wisconsin State Cartographer's Office. For other publications visit <http://www.sco.wisc.edu/publications>.

The State Cartographer's Office is a special program within the Department of Geography at the University of Wisconsin-Madison. The mission of the Office is to foster the development of Wisconsin's geospatial community through the creation and exchange of geospatial data, services, and information.

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³⁴ The relationship between government lots and quarter-quarter sections varied in many ways; note lots 1-5 in Figure 4. Manual matching allowed us to confirm that government lots were appropriately configured and numbered.

