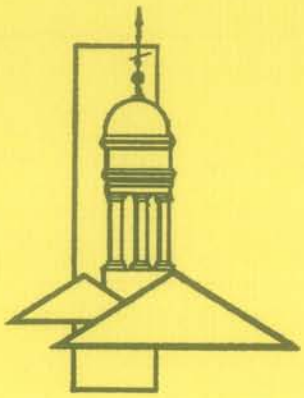

WISCONSIN STATE UNIVERSITY

STEVENS POINT, WISCONSIN

THE MUSEUM OF NATURAL HISTORY

Reports on the Fauna and Flora of Wisconsin

PRELIMINARY LIST OF FISHES OF PORTAGE COUNTY, WISCONSIN

By

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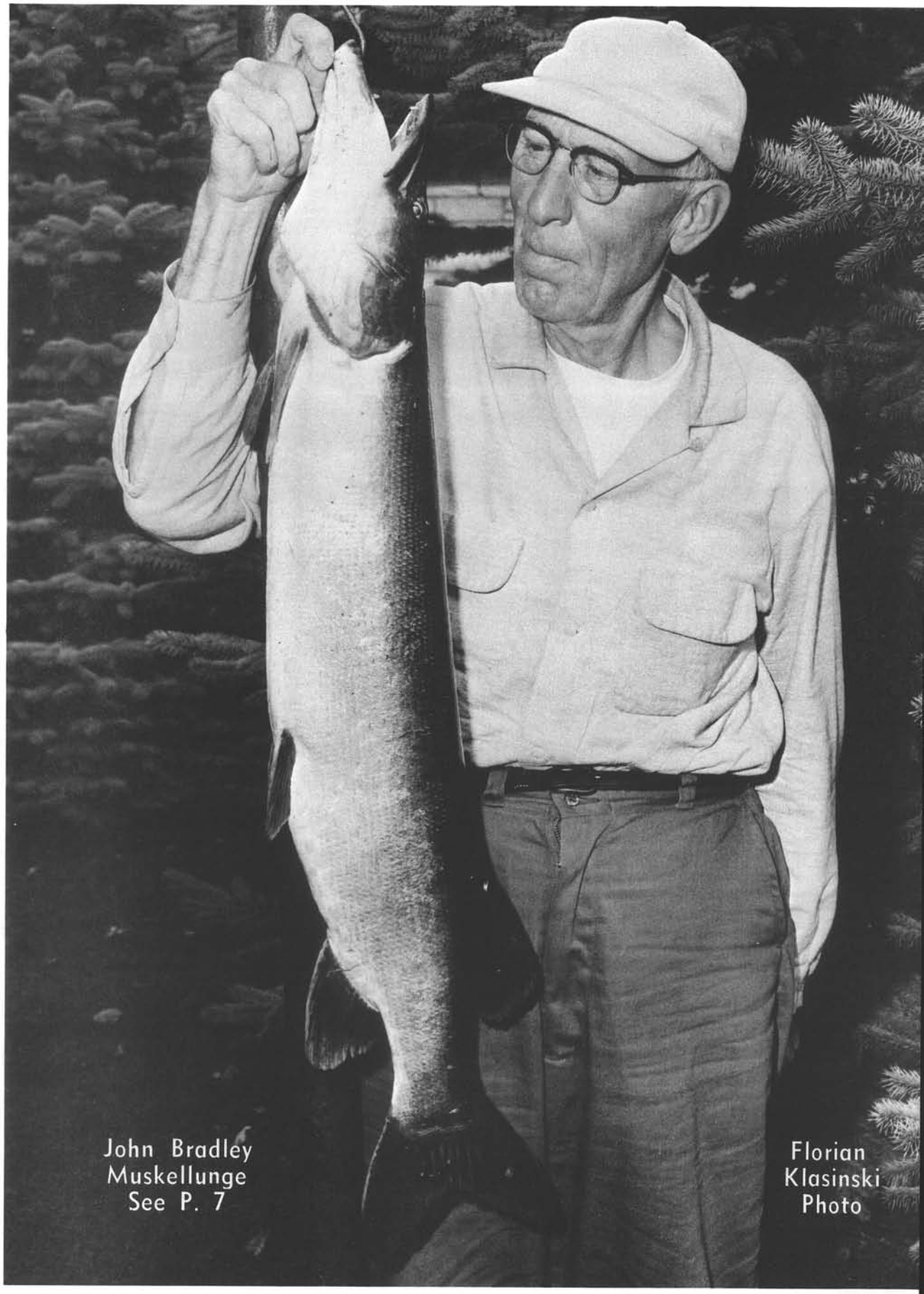
U. S. A.

June 1, 1969

Report No. 1



John Bradley
Muskellunge
See P. 7

Florian
Klasinski
Photo

PRELIMINARY LIST OF FISHES OF PORTAGE COUNTY, WISCONSIN

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Portage County, aside from being centrally located in the State of Wisconsin, is uniquely bisected from north to south by the Great Lakes-Mississippi watershed line. East of this line the land drains into the Tomorrow and Little Wolf Rivers and their waters eventually reach the Atlantic Ocean via the Great Lakes and the St. Lawrence River system. West of this line drainage is into the Wisconsin River which flows into the Mississippi and this in turn into the Gulf of Mexico. In the Town of Sharon, Twin Lakes (Great Lakes drainage) and the Plover River (Mississippi River drainage) are only three miles apart, but their waters eventually reach salt seas separated by thousands of miles. The divide is the terminal moraine left by the Wisconsin glacier. The Wisconsin River drainage is the huge outwash plain on which the city of Stevens Point is situated. East of the terminal moraine the streams cut through the glacial drift.

Portage County has a good number of streams varying in size from the Wisconsin River to innumerable spring-fed tributaries. The Wisconsin River, were it not for objectionable mill wastes, would be an excellent source of fish food. Large northerns and walleyes are still taken in numbers but the taste of the flesh is offensive to most people and under current conditions the fishery must be written off. On the other hand many trout streams are in excellent condition. The ditches of Buenavista Marsh, the Tomorrow River, Flume Creek, Little Plover River, Emmons Creek provide fine trout fishing. The lakes of east-central Portage County supply bass and panfish in numbers. Several lakes have been planted to trout and of these Sunset Lake has been successfully stocked to cisco.

Since 1957 several fish surveys have been undertaken by staff members and students of Wisconsin State University-Stevens Point. Natural History classes under the direction of Mr. Jack Barnes initiated the study of the fishes and some of our early records were supplied by him. Several surveys were undertaken on the Plover River and the Wisconsin River by students working on special projects (Appendix 1). A keen interest has developed in knowing the varieties of fishes found in the Stevens Point area.

The total number of species of fish recorded from Portage County is 71 and almost all have been collected during the past 10-year period. The present list is tentative since there are many gaps in our coverage. For instance, some stream systems have had inadequate sampling. Work is needed on Duck Creek and Ten Mile Creek in the southwestern sector of the county. The kettle lakes in the eastern half need much more attention than has been given them. The Wisconsin River needs intensive search, using a wide variety of collecting devices. Such large water with its many niches will produce additional species of fishes. Despite these deficiencies this report is presented as an interim vehicle for the student, professional worker, and outdoorsman. Hopefully it will stimulate more sampling in the future.

Although our waters, with the exception of the Wisconsin River, are in good shape, there are a few distressing signals. Siltation is a visible problem in most of our trout streams. Eutrophication (enrichment) of our lakes is occurring here as well as elsewhere in the state. Agricultural chemicals have taken their toll; e.g. the potato spray Thiodan during early August, 1968, killed 605 brook trout in the Little Plover River.

Highway construction has attacked the main channel of the Plover River north of highway 10 and dredged a new channel, damaging habitat of a unique species of darter. A municipal sewer system is routed into the lower Plover River despite warnings that it will contribute toward pollution. The bacterial count of the waters from the lower Plover River are dangerously high during the late summer months. A number of communities and industries in the county have been warned that their effluent is polluting waters and have been advised to clean up. The rapid growth of Stevens Point, its university and the surrounding suburbs, the encouragement and establishment of new industry have added to the pollution problem.

In Portage County the growth of farming through irrigation has implications which are not clearly understood. Whether water is taken directly from the stream or from shallow wells near the stream, evidence shows at least temporary decrease in stream flow. The long-term effects of such manipulations has not yet been assessed. The fluctuation of the waters in the Tomorrow River below the Amherst dam is extensive over a 24-hour period. Water temperatures follow closely the variations in air temperatures during the critical summer months and reach dangerously high levels (90° F. and higher).

The following list of fishes results from approximately 70 collections by University personnel since 1957, compared to 8 samples Greene (1935) made in his study. The minnow seine and the alternate-current electric shocker are the standard devices used for sampling although minnow traps, gill nets, fyke nets and dip nets were also employed. The map of Portage County (Appendix 2) should help in location of record sites. Appendix 1 includes major papers and reports on which this Portage County list is based. A number of additional collection records were used from the files in the Museum of Natural History at this University.

Thanks are especially due to my son, Kenneth, Jack Barnes, Fred Copes, Tom Charmley, David Brown, John Palmisano, Edward Peters, Craig Schwartz, Robert Schacht and many who passed through my ichthyology classes. Hopefully others will continue the search, tieing in the change of fish distribution with environmental changes. I am grateful to Conservation Warden Herbert Schneider and Fish Managers Daniel Folz and Mike Primising and to Biologist Mike Laska, formerly with the Wisconsin Conservation Department (Dept. of Natural Resources). George Rogers, Stevens Point Daily Journal, was helpful in tracking down old records.

Many of the specimens captured over the past decade are housed in the Museum of Natural History - Wisconsin State University at Stevens Point. Keys have been prepared for FAMILIES OF WISCONSIN FISHES, PERCID FISHES OF WISCONSIN, CENTRARCHIDS OF WISCONSIN, CYPRINIDS OF WISCONSIN and CATASTOMIDS OF WISCONSIN. These are available from the Museum upon request.

After the species' names, locales are given where they were taken. Clarification of some of these locales follows:

Upper Tomorrow R.-includes the Tomorrow R. from its headwaters (above hwy. 66) downstream to the Nelsonville dam.

Middle Tomorrow R.-from below the Nelsonville dam downstream to the Amherst dam.

Lower Tomorrow R.-from below the Amherst dam downstream to the county line. This includes that section of the stream (lying below juncture with Spring Cr.) which is referred to on many maps as the Waupaca (=Tomorrow) River.

Eske L. & Cr.-located SW¼ Sec. 19 T24N R10E Town of New Hope.

Cr. draining Ebert L.-NW¼ Sec. 30 T23N R10E Town of Amherst.

Iverson Pk.-NE¼ Sec. 34 T24N R8E Town of Plover.

Bear C.-Town of Amherst stream flowing east into the Tomorrow R. (The Bear C., Town of Linwood, is not among the sampled streams).

Buenavista Cr.-sampled at Sec. 19 T22N R9E and Sec. 15 T22N T8E.

Northern brook lamprey-Ichthyomyzon fossor Reighard & Cummins. Tomorrow R. Sec. 36 T25N R9E downstream; Bear Cr. Sec. 25 T23N R9E; Cr. draining Ebert Lake; Plover R. Secs. 19 & 30 T25N R9E (Sept. 13, 1967, collection with 3 adults, 2 ammocetes). Common lamprey of the streams of Great Lakes drainage. Uncommon in the Mississippi drainage.

Ichthyomyzon sp. An account in the Stevens Point Daily Journal, Sept. 29, 1962, reports capture through boom shocking of 3½ tons of carp from McDill Pond (Plover River)..."Some of the carp had lampreys attached...". These parasitic lampreys were either the silver lamprey, Ichthyomyzon unicuspis Hubbs & Trautman, or the chestnut lamprey, Ichthyomyzon castaneus Girard or both species. No specimens were saved from this shocking run.

American brook lamprey-Lampetra lamottei (Lesueur). Buenavista Cr. Sec. 20 T22N R9E; Plover R. at Iverson Pk. and below McDill Pond; Lt. Eau Claire R. Sec. 1 T24N R7E; Haymeadow Cr. Sec. 4 T24N R8E. Common lamprey of the Mississippi drainage.

Lake sturgeon-Acipenser fulvescens Rafinesque. Warden Herb Schneider has heard that recent sightings have been made of this species below the Wisconsin R. spillway (Sec. 8 T23N R8E) in recent years; however, these reports are unconfirmed by a catch. John Kawleski, Stevens Point, states that about 1924-27 sturgeon up to 7 feet were taken in numbers some 3 mis. downstream from the present DuBay Dam. He has no knowledge of this fish being captured in the county in recent years.

Bowfin-Amia calva Linnaeus. Report by David Jaeger of individual caught at the mouth of Mill Cr., June 2, 1965. Frank Van Hulle reported a 15" bowfin caught below the Wis. R. spillway (Sec. 8 T23N R8E), May 7, 1965. Catch from near mouth of Haymeadow Cr., Sec. 11 T24N R7E (Wis. Cons. Dept. 1959).

Cisco- Leucichthys artedii (Lesueur). Five hundred from Pallette L. (Vilas Co.) stocked in Sunset L. in 1961. Some survived the partial chemical treatment administered in 1965. One individual was taken in Dept. of Nat. Resources test nets in May, 1968.

Rainbow trout-Salmo gairdneri Richardson. Recent records from the lower Tomorrow R. below Amherst. Past stocking in lower Plover River from Jordan Dam downstream. Stocking in Sunset and Thomas L. has led to high returns to anglers. Least common trout in Portage Co.

Brown trout-Salmo trutta Linnaeus. Upper, middle and lower Tomorrow R.; Emmons Cr.; Bear Cr.; Little Wolf R.; Buenavista Cr.; Four Mile Cr.; Flume Cr.; and others (Wis. Cons. Dept. 1968). Reproduces naturally in most streams of suitable water. Stocked in Sunset, Fountain and Thomas Lakes.

Brook trout-Salvelinus fontinalis (Mitchill). Upper and middle Tomorrow R. and its tributaries, Little Plover R., Buenavista Cr. Bear Cr., Spring Cr. Native in occasional spring holes in eastern third of county. Stocked in Sunset L. in 1966. This planting showed rapid growth and provided fine fishing. For additional sources see Wis. Cons. Dept. (1968).

Quillback-Carpiodes cyprinus (Lesueur). One fish taken by Mike Laska during winter net fishing (Dec. 1958-March 1959) at the mouth of Holiday Creek, Sec. 25 T23N R7E (Wis. Cons. Dept. 1959).

White sucker-Catostomus commersoni (Lacépède). General distribution in streams and rivers of all sizes in the county. Present in a number of lakes including Collins, Emily, Helen, Lime, Meyers, Pickerel, Rhinehart, Tree, Sunset.

Northern hogsucker-Hypentelium nigricans (Lesueur). Middle and lower Tomorrow R., Plover R., Bear Cr., Wisconsin R. Sec. 16 T23N R8E. A common fish of rocky riffs.

Golden redhorse-Moxostoma erythrurum (Rafinesque). Collins L. (probable escape from live-box); Plover R. from Iverson Pk. to mouth. This species is generally found in large water and has been found in fair numbers on the lower Plover R.

Northern redhorse-Moxostoma macrolepidotum (Lesueur). Mill Cr. at Co. hwy. C. I would expect to find this species in the mouths of larger streams tributary to the Wisconsin R.

Largescale stoneroller-Campostoma anomalum oligolepis, Hubbs & Greene. Feeder cr. to southwest corner of Nelsonville millpond; Bear [illegible] Sec. 29 T23N R10E; Cr. draining Ebert L.; lower Tomorrow R.; Plover R.; Haymeadow Cr. at hwy. 51. Common in running water over gravel.

Northern red-belly dace-Chrosomus eos Cope. Upper Tomorrow R. and Eske L. outlet; cr. draining Ebert L.; Buenavista Cr.; Plover R. downstream to Jordan Pond. A common form of headwaters streams, also found in bog ponds.

Southern red-belly dace-Chrosomus erythrogaster (Rafinesque). Lower Tomorrow R. Sec. 28 T23N R10E & Sec. 2 T22N R10E; Plover R. Sec. 18 T25N R9E (vic. Iverson Pk.); cr. draining Ebert L. Less common than C. eos, also found more frequently in larger streams.

Finescale dace-Chrosomus neogaeus (Cope). Tomorrow R. at hwy 66 (Sept. 5, 1960); Eske L. outlet Sec. 19 T24N R10E (April 23, 1960). Present in slow-moving headwater streams, the finescale is in precarious position in Portage Co. and elsewhere in Central Wisconsin.

Carp-Cyprinus carpio Linnaeus. Millponds at Nelsonville and Amherst, middle-lower Tomorrow R.; lower Mill Cr.; Millponds Plover R. Abundant in Wisconsin R. sloughs and impoundments.

Brassy minnow-Hybognathus hankinsoni Hubbs. Plover R. Secs. 19 & 30 T24N R9E and Sec. 13 T24N R8E; Tomorrow R. at co. A below Amherst. Uncommon in medium-sized streams in Central Wisconsin.

Hornyhead chub-Hybopsis biguttata (Kirtland). Lower Tomorrow R.; cr. draining Ebert Lake; Plover R. (Entire length within county). Common in medium-sized clear-water streams.

Golden shiner-Notemigonus crysoleucas (Mitchill). Upper Tomorrow R. at hwy. 66 and lower Tomorrow R.; Collins L.; Lime L.; Meyers L.; Pickerel L.; Rhinehart L.; Tree L.; Lt. Eau Claire at hwy. X. Abundant in Wisconsin R. below DuBay Dam and in sloughs.

Emerald shiner-Notropis atherinoides Rafinesque. Tomorrow R. Sec. 28 T23N R10E (April 17, 1962) and Sec. 3 T22N R10E (April 25, 1959, and April 17, 1962). The few individuals taken are believed to be escapes from Rhode's minnow ponds located at Amherst. It is doubtful if this minnow is now native in Portage Co. although it may have at one time been present in the Wisconsin R.

Common shiner-Notropis cornutus (Mitchill). Wisconsin R. (at least from Sec. 3 T25N R8E to Sec. 20 T23N R8E); Tomorrow R. entire; cr. draining Ebert L.; Bear Cr. Sec. 29 T23N R10E; Plover R. entire; Lt. Eau Claire R. at co. X. The most common minnow in the county, occurring in large schools in the Plover R. above Jordan Pond and in the lower Tomorrow R.

Bigmouth shiner-Notropis dorsalis (Agassiz). Lower Tomorrow R.; Plover R. entire; cr. draining Ebert L.; Buenavista Cr. Sec. 15 T22N R8E. Common in the Plover R. at Iverson Pk. and head of McDill pond.

Blackchin shiner-Notropis heterodon (Cope). Outlet of Eske L. Sec. 19 T24N R10E, April 23, 1960, one individual taken in running water. Normally a lake form; this species may be present in one or more lakes in the eastern third of the county.

Blacknose shiner-Notropis heterolepis Eigenmann & Eigenmann. Eske L. Sec. 19 T24N R10E; cr. draining Ebert L.; upper Tomorrow R. at hwy. 66 and Sec. 19 T24N R10E; Haymeadow Cr. Sec. 28 T25N R8E. A common minnow of lakes and sluggish streams.

Rosyface shiner-Notropis rubellus (Agassiz). Plover R. from Sec. 17 T25N R9E downstream. Common in clean medium-sized rivers. May be expected in the lower Tomorrow R. near the county line.

Sand shiner-Notropis stramineus (Cope). Lower Tomorrow R. Sec. 28 T23N R10E; Wisconsin R. at Lake DuBay Pk. Sec. 4 T25N R7E. Medium-to large-sized rivers over sand bottom.

Redfin shiner-Notropis umbratilis (Girard). Recorded by Greene (1935) from the Plover R. vicinity Stevens Point and from the mouth of Mill Cr. Minnow of quiet, highly silted water.

Mimic shiner-Notropis volucellus (Cope). Mill Cr. at hwys. C and P. Typically in large slow-moving or quiet water, often in deep water beyond the reach of collecting gear.

Pugnose minnow-Ossopoeodus emiliae Hay. Wisconsin R. at mouth of Haymeadow Cr. SW¼ Sec. 13 T24N R3E, Sept. 17, 1966. The two specimens taken by John Palmisano and Ed Peters make a rare record for this county. Distribution generally southward.

Bluntnose minnow-Pimephales notatus (Rafinesque). Plover R. entire; middle and lower Tomorrow R.; L. Emily; cr. draining Ebert L.; Bear Cr. Sec. 29 T23N R10E; Wisconsin R. entire; Lt. Eau Claire at hwy. X; Mill Cr. entire. Common in streams and lakes of all sizes and in many habitats.

Fathead minnow-Pimephales promelas Rafinesque. Outlet Eske L.; lower Tomorrow R.; Buenavista Cr.; Plover R. entire; Lt. Eau Claire R. at hwy. X; Mill Cr.; Sunset L. Greatest numbers taken from the Tomorrow R. at hwy. A and from Buenavista Cr. Sec. 20 T22N R9E, but nowhere common.

Blacknose dace-Rhinichthys atratulus (Hermann). Tomorrow R. entire; Eske Cr.; cr. draining Ebert L.; Bear Cr.; Spring Cr.; Buenavista Cr.; Lt. Plover R. downstream to Iverson Pk. Abundant in cold, clear-water streams.

Longnose dace-Rhinichthys cataractae (Valenciennes). Lower Tomorrow R.; Plover R. downstream to Iverson Pk. Common to abundant in medium-sized streams over gravel in riffle areas.

Creek chub-Semotilus atromaculatus (Mitchill). Tomorrow R. entire; Eske Cr.; cr. to southwest corner of Nelsonville millpond; cr. draining Ebert L.; Spring Cr.; Buenavista Cr.; Bear Cr.; Plover R. downstream to Iverson Pk.; Lt. Eau Claire R. at hwy. X; Sunset L. Common stream fish found under a wide variety of conditions; rare in lakes.

Pearl dace-Semotilus margarita (Cope). Tomorrow R. downstream to Secs. 27-28 T23N R10E; Eske Cr.; cr. draining Ebert L.; Emmons Cr.; Plover R. Secs. 19 & 30 T25N R9E. Abundant in Tomorrow R. at hwy. 66 and in Buenavista Cr. Sec. 20 T22N R9E.

Black bullhead-Ictalurus melas (Rafinesque). Wisconsin R. entire; lower Tomorrow R. Sec. 3 T22N R10E; Plover R. entire; Lt. Eau Claire R.; Mill Cr. Abundant in the Wisconsin R. in sloughs and deep holes.

Yellow bullhead-Ictalurus natalis (Lesueur). Upper Tomorrow R. Sec. 36 T25N R9E; lower Tomorrow R.; Collins L.; Plover R. entire; Wisconsin R.; Mill Cr. Common in clear running water, less common in clean-water lakes.

Brown bullhead-Ictalurus nebulosus (Lesueur). Reported by Greene (1935) from near the mouth of Mill Cr.

Channel catfish-Ictalurus punctatus (Rafinesque). Greene (1935) records a report from the mouth of the Plover R. Over 2,000 stocked in L. Helen, Nov. 8, 1955; all dying through winter kill by following spring.

Stonecat-Noturus flavus Rafinesque. Plover R. entire; mouth of Holiday Cr. Sec. 25 T23N R7E (Wis. Cons. Dept. 1959). Flowing water over rubble and boulders.

Tadpole madtom-Noturus gyrinus (Mitchill). Wisconsin R. entire; lower Tomorrow R.; Plover R. at head of McDill Pond; Mill Cr. at hwy. C. Common in the Wisconsin R. A fish of sloughs and quiet water.

Central mudminnow-Umbra limi (Kirtland). Upper Tomorrow R.; Eske Cr.; Collins L.; cr. draining Ebert L.; Bear Cr.; Spring Cr.; Buenavista Cr.; Plover R. downstream to head of McDill pond; Wisconsin R. slough S½ Sec. 35 T25N R7E; Lt. Eau Claire R. at hwy. X; Haymeadow Cr.; Lime L. General distribution in streams of all sizes; occasional in lakes.

Northern pike-Esox lucius Linnaeus. Upper Tomorrow R. Sec. 36 T25N R9E; Collins L.; Plover R. impoundments; Wisconsin R.; Nelsonville pond; Lt. Eau Claire R. at hwy. X; Haymeadow Cr.; Mill Cr. See Wis. Cons Dept. (1964). Common in lakes and larger streams thgoughout the county. Fifteen to 20-pounders taken occasionally from flowages of the Wisconsin R.

Muskellunge-Esox masquinongy Mitchill. The Stevens Point Daily Journal, Oct. 16, 1962, carried a picture and an account of a 39-inch, 15½-pound, muskellunge taken by John Bradley from near the mouth of Mill Creek. Bradley reported he caught another muskie in the Wisconsin R. below DuBay Dam in 1961. In Portage Co. known only from the Wisconsin R. and mouths of tributary streams. The capture of this species is a rare event.

Banded killifish-Fundulus diaphanus (Lesueur). Lake Emily. Over 200 individuals were seined from marl-bottom shallows, August 10, 1960.

Burbot-Lota lota (Linnaeus). Haymeadow Cr. at hwy 51; mouth of Plover R. (Greene 1935); winter net fishing (Dec. 1958-March 1959) produced numbers at mouths of Holiday and Haymeadow creeks (Wis. Cons. Dept. 1959).

Brook stickleback-Culaea inconstans (Kirtland). Tomorrow R. downstream to hwy. A; Buenavista Cr.; Plover R. Secs. 19 & 30 T25N R9E and Sec. 13 T24N R8E; Wisconsin R. at mouth of Lt. Plover R. A small form easily overlooked.

Trout-perch-Percopsis omiscomaycus (Walbaum). Wisconsin R. below spillway Sec. 8 T23N R8E, April 14, 1963. Reported common near mouth of Holiday Cr. Sec. 25 T23N R7E (Wis. Cons. Dept. 1959).

Pirate perch-Aphredoderus sayanus (Gilliams). Greene (1935) has one record from near mouth of Mill Cr..."6 miles S.W. Stevens Point."

Rock bass-Ambloplites rupestris (Rafinesque). Cr. draining Ebert L.; Emmons Cr.; Wisconsin R. at mouth of Plover R.; Plover R. at Iverson Pk.; Mill Cr.; Lake Emily; Fountain L. Probably occurring in a number of lakes of eastern Portage Co.

Green sunfish-Lepomis cyanellus Rafinesque. Outlet Eske L.; Lake Emily. Uncommon quiet-water form.

Pumpkinseed-Lepomis gibbosus (Linnaeus). Wisconsin R. entire; Plover R. entire; Eske L. outlet; feeder cr. southwest corner of Nelsonville Pond; Collins L.; cr. draining Ebert L.; lower Tomorrow R.; Lt. Eau Claire R. at hwy. X. Abundant in Wisconsin R., elsewhere common. Present in a number of lakes in eastern part of county.

Bluegill-Lepomis macrochirus Rafinesque. Eske L. outlet; Collins L.; L. Emily; Wisconsin R. Sec. 20 T23N R8E; Tomorrow R. Sec. 19 T24N R10E; Mill Cr. Undoubtedly present in most of Portage county's lakes.

Smallmouth bass-Micropterus dolomieui Lacépède. Wisconsin R. at mouth of Plover R.; Jordan Pond of the Plover R. and downstream to mouth; mouth of Mill Cr. (Greene 1935). Formerly abundant in the Wisconsin R.

Largemouth bass-Micropterus salmoides Lacépède. Tomorrow R. Sec. 26 T25N R9E and Secs. 2-3 T22N R10E; Eske L.; Collins L.; L. Emily; Fountain L.; Lime L.; Bear L.; Pickerel L.; Rhinehart L.; Tree L.; Wolf L.; Sunset L.; and others (Wis. Cons. Dept. 1964). Wisconsin R.; Plover R. at Iverson Pk.; Mill Cr. at hwy. P. Number of 4-to-5 pounders taken yearly in county.

Black crappie-Pomoxis nigromaculatus (Lesueur). Lower Tomorrow R.; Plover R. Sec. 18 T25N R9E; Wisconsin R. entire; Lakes Emily, Fountain, Lime, Rhinehart, Tree. Abundant in sloughs of the Wisconsin River.

Rainbow darter-Etheostoma caeruleum Storer. Plover R. entire; Wisconsin R. at mouth of Lt. Plover R. and the Plover R.; near mouth of Mill Cr. (Greene 1935). Associated with current and gravel bottom.

Iowa darter-Etheostoma exile (Girard). Eske Cr.; Collins L.; Spring Cr.; Lt. Eau Claire R. at hwy. X; Wisconsin R. Common in the Wisconsin River at beaches and elsewhere over smooth firm bottom.

Fantail darter-Etheostoma flabellare Rafinesque. Upper Tomorrow R. 2 mis. S. hwy. 66 and at hwy. Z; cr. draining Ebert L.; Bear Cr.; Lt. Eau Claire at hwy. X; Plover R. entire; Mill Cr. at hwy. P; Wisconsin R. at mouths of Plover and Lt. Plover Rivers. Common in clean flowing water over gravel.

Least darter-Etheostoma microperca Jordan & Gilbert. Plover R. at Iverson Pk.; cr. draining Ebert L. space Permanent population in heart-shaped pond alongside hwy. 10 at north end of Iverson Pk. Rare, prefers quiet waters, weeds over mud bottom.

Johnny darter-Etheostoma nigrum Rafinesque. Tomorrow R. Sec. 36 T25N R9E downstream; cr. draining Ebert L.; Buenavista Cr.; Plover R. entire; Bear Cr.; Wisconsin R.; Lt. Eau Claire R. at hwy. X; Haymeadow Cr. Sec. 28 T25N R8E; Mill Cr. at hwy. C. Abundant thouughout the county in fast or slow moving water. Common in quiet water over clean sand or gravel bottom.

Banded darter-Etheostoma zonale (Cope). Lower Tomorrow R. Secs. 2-3 T22N R10E; Plover R. entire; Wisconsin R. at mouths of Plover and Lt. Plover Rivers. Found in medium-sized running water over gravel.

Yellow perch-Perca flavescens (Mitchill). Partial list of lakes with known populations: Eske, Collins, Emily, Rhinehart, Fountain, Lime Meyers, Pickerel, Wolf. Bear Cr.; middle Tomorrow R.; Lt. Eau Claire R. at hwy. X; Haymeadow Cr. at hwy. 51; Wisconsin R. entire. Abundant. Up to 14" total length (Eske L.).

Logperch-Percina caprodes (Rafinesque). Plover R. Sec. 13 T24N R8E; Wisconsin R. at mouth of Plover R.; Lt. Eau Claire at hwy. X; Mill Cr. at hwy. P. Large-river form over firm bottom. Uncommon in our area.

Blackside darter-Percina maculata (Girard). Plover R. entire; Wisconsin R. at mouth of Plover R.; Lt. Eau Claire R. at hwy. X; Haymeadow Cr. Sec. 28 T25N R8E; Mill Cr. at hwys. C and P. Taken from medium-sized rivers over a wide variety of bottom types.

Walleye-Stizostedion vitreum vitreum (Mitchill). McDill Pond of Plover R.; lakes Pickerel, Tree, Wolf, Collins, Emily and others (Wis. Cons. Dept. 1964); Wisconsin R. below spillway Sec. 8 T23N R8E; Mill Cr. hwy. P to mouth. Abundant at Wisconsin R. spillway and mouth of Mill Cr. where many 3 to 5 lb. fish are caught. These are largely inedible because of contamination with paper mill liquor wastes.

Brook silversides-Labidesthes sicculus Cope. L. Emily; Wisconsin R. at mouth of Plover R. Inhabitant of large quiet water.

Mottled sculpin-Cottus bairdi Girard. Tomorrow R. downstream to Secs. 2-3 T22N R10E; Eske Cr.; cr. flowing into SW corner of Nelsonville Pond; Bear Cr.; Buenavista Cr.; Emmons Cr.; cr. draining Ebert L.; Plover R. at Iverson Pk. Common in cold, clear running water. Considered a trout indicator.

Of Portage County's known 71 species of fish the present study records 63 from the Mississippi drainage basin of Portage County and 49 from the Great Lakes drainage. Additional species from both drainages may be expected in Portage County since several have been recorded from adjacent counties.

Greene(1935), who made his study in the late 1920's, sampled only Mill Cr., Haymeadow Cr., Plover R., Wisconsin R., Tomorrow R., and Flume Creek, finding 35 species. Of these, four species (redfin shiner, brown bullhead, channel catfish and pirateperch) have, to my knowledge, not been collected in this county since his study.

APPENDIX I

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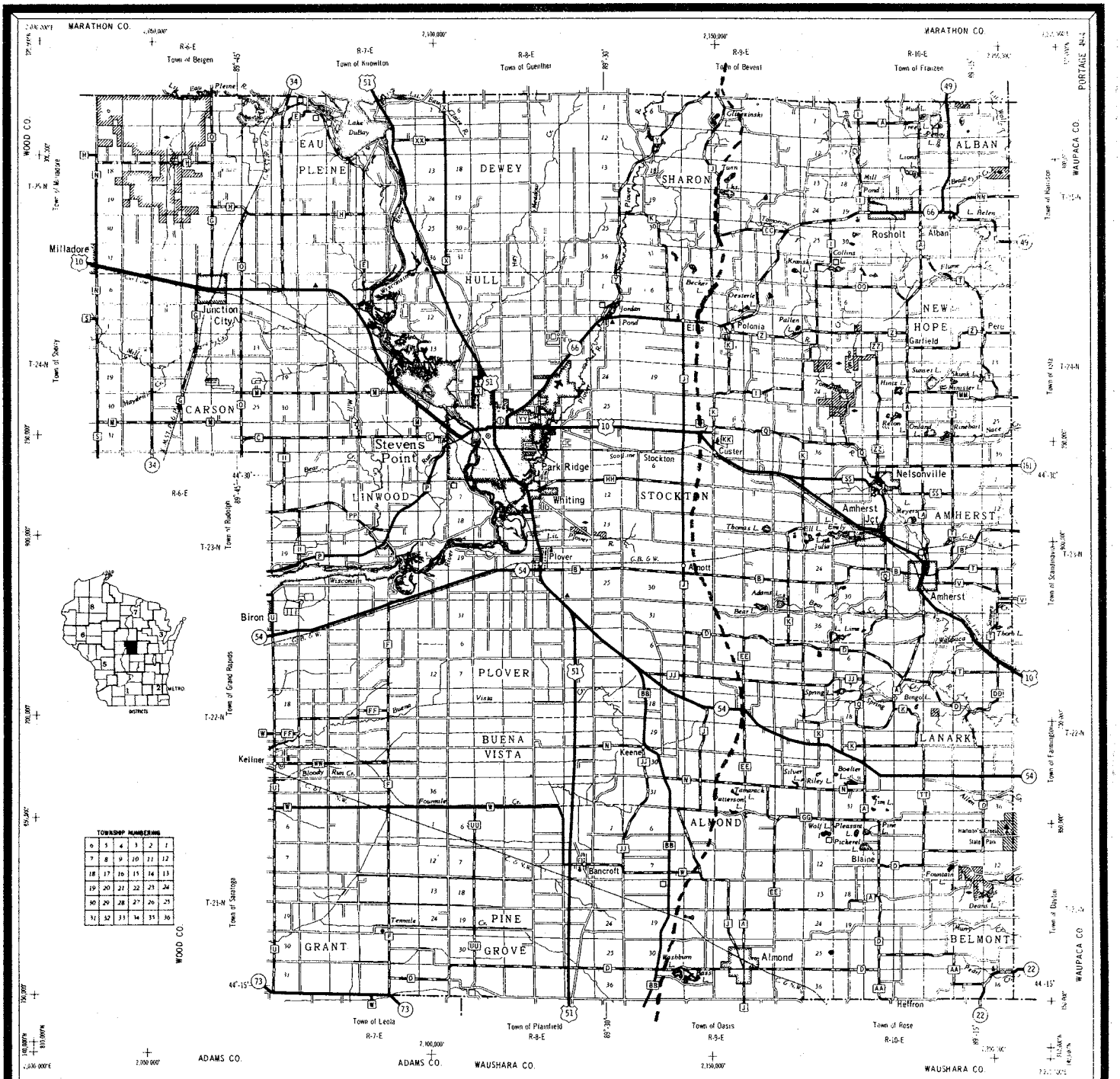
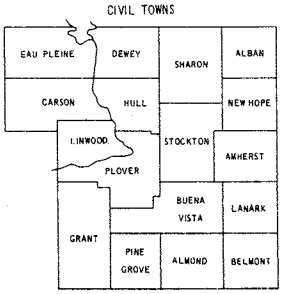


LEGEND

- Portland Cement or Bitum. Concrete
- Bituminous
- Gravel
- Earth
- *Town Road
- Fire Lane
- Interstate Highway
- Interchange
- Highway Separation
- Interstate Highway No. (90)
- U.S. Highway No. (41)
- State Highway No. (13)
- County Hwy Letter (A)
- Railroad (Single / Double)
- Railroad Tunnel
- Dam
- State Boundary
- County Boundary
- U.S. & STATE
- COUNTY
- Civil Town Boundary
- Corporate Limits
- Nat. & State Forests
- Airport
- Fish Hatchery
- Fair Grounds
- County Seat
- Unincorp. Village
- Schools
- Public Hunt. or Fish. Grds.
- Hospital
- Lookout Tower
- Ranger Station
- Public Camp & Picnic Grds.
- State Park
- County or City Park
- Wayside
- Game Farm
- Wisconsin State University

*Surface types on town roads not shown

CIVIL TOWNS



APPENDIX 2

MILES OF HIGHWAYS as of Jan 1, 1966

STATE	144
COUNTY	148
LOCAL ROADS	1078
OTHER ROADS	4
TOTAL FOR COUNTY	1674

Great Lakes - Mississippi Watershed Line

PORTAGE CO.

STATE HIGHWAY COMMISSION OF WISCONSIN
STATE OFFICE BUILDING
Madison, Wisconsin

SCALE 0 1 2 MILES

Corrected for JAN 1967

Compiled from U. S. G. S. Quadrangles
Based on Aerial Photographs

Land Area ..... 810 Sq. Mi.
Population 36,964
County Seat ..... Stevens Point

+ Grid based on Wisconsin coordinate system, south-central zone

PORTAGE 48-4