Report 201

REPORT ON EXAMINATIONS OF HATCHERY SITES IN IOWA

By Earl L. Hubbs and J. Clark Salyer

In connection with the general investigation of Iowa waters and Iowa fish problems, during the summer of 1932, we visited a number of proposed fish hatchery sites. This report deals with these hatchery sites examinations.

We give first a discussion of what appeared to us to be the more promising of the proposals, from the standpoint of building up the fish supply of the state. Following these we give a brief account of the fish cultural possibilities of a considerable number of springs, mostly in the northeastern part of the state. Then we give an account of the examination of various other proposed sites—gravel pits, sloughs, ponds, puddles and just seepage possibilities. In general our examinations were necessarily brief, though often long enough to indicate clearly the impracticability of the project involved.

It must be borne in mind that between us we spent but a few weeks in Iowa, and that our attention was largely given to other matters. We did make an earnest effort to examine hatchery sites, but of course had to leave unseen hundreds of springs and ponds over the state. In the location and development of actual sites, we can only suggest that the data of this report be considered. The advantages of other sites should be duly weighed against those of the sites examined by us. In the selection of sites the greatest care should be exercised. Iowa will profit materially by thinking more in terms of fish than of politics in locating rearing stations. Examples of heavy expenditures on virtually hopeless projects were seen, and the consideration given for the development of such projects as for instance

that on Clear Creek in Cedar County, has convinced us that our recommendation given above, as to fish vs. politics, is still applicable.

In some instances, as that Twin Springs and Sievert Spring near Decorah, we give favorable recommendations for two projects in close proximity. Naturally we do not recommend the development of both projects. We merely state the advantages (as well as the disadvantages) of each site as seen by us, so that our data can be weighed along with other information and other considerations.

In planning the location of the rearing stations, we recommend that close attention be given to the fishcultural needs of each section of the state. In the fish section of the general report on the Iowa Survey are stated in rough areal terms the advantageous locations for major rearing pond developments, for trout and for bass especially.

SIEVERT SPRING, WINNESHIEK COUNTY

Examined by Salyer, 1932, and by Hubbs (with Mr. Charles Altfillisch of Decorah) on August 9, 1932

This spring, one of the largest in Iowa, flows out of a small cirque in a limestone bluff a few miles south of Decorah. It discharges through a short but sizable creek into Trout Run. The flow, over the dam at the spring is about 4 cu. ft./sec., as indicated by the 3 1/2 inch crest of water which was found flowing over the spring dam, which is 11'9" wide at the top. The flow was said by the owner (Mr. J. O. Hjelle) to be slightly higher than the minimum when examined. He says it gets somewhat lower, but always remains strong.

The purpose of the dam is to divert water when needed through a small power house, which could be used for grinding meat, etc., if the project goes through.

The water was moderately clear when examined. It is said to run somewhat milky when high, following rains (Mr. Hjelle says the stream has risen to the height of the little bridge at times) although the spring receives virtually no flood water. We understand that the spring has been somewhat discredited by Iowa fishculturists on account of this tendency to run milky. This opinion apparently is based on Mr. Moe's finding that very young trout at Strawberry Point are put "off their feed" by such water. But we are of the opinion that such water would not seriously affect fingerling rearing.

The prospects of this site seemed extremely good from our cursory examination. There is an abundance of good water, of very low temperature (in spring ppol, 9.4°C = 48.9°F., with the air at 22.5° = 72.5°F on August 9). On July 7 at 11:30 A.M., with air at 89°F, the water registered 51°F. Below the spring, between house and creek is a beautiful flat, where about a dozen fine large races for trout rearing could be dug, each fed independently from a feeder ditch as shown in the sketch, and each discharging directly into the creek, so that each is drainable or treatable independently,

and so that disease epidemics could be largely eliminated.

On the other side of the creek, but well above its flood level and far above Trout Run, are flats somewhat lower than the spring level. A foot or two increase in spring level would give good gravity flow to these flats, by a ditch contoured along the rolling land just above. Thus water could be brought independently into four or more bass rearing ponds of several acres each. These ponds likewise could be separately drainable. The exact size and location of the ponds was not determinable from our cursory examination, and should be studied from that standpoint, and also from the standpoint of soil, etc. It appeared on the ground that the construction of bass ponds here would be wholly practicable. The soil in the region of the proposed trout races is clay, and it is likely similar in the area of proposed bass ponds.

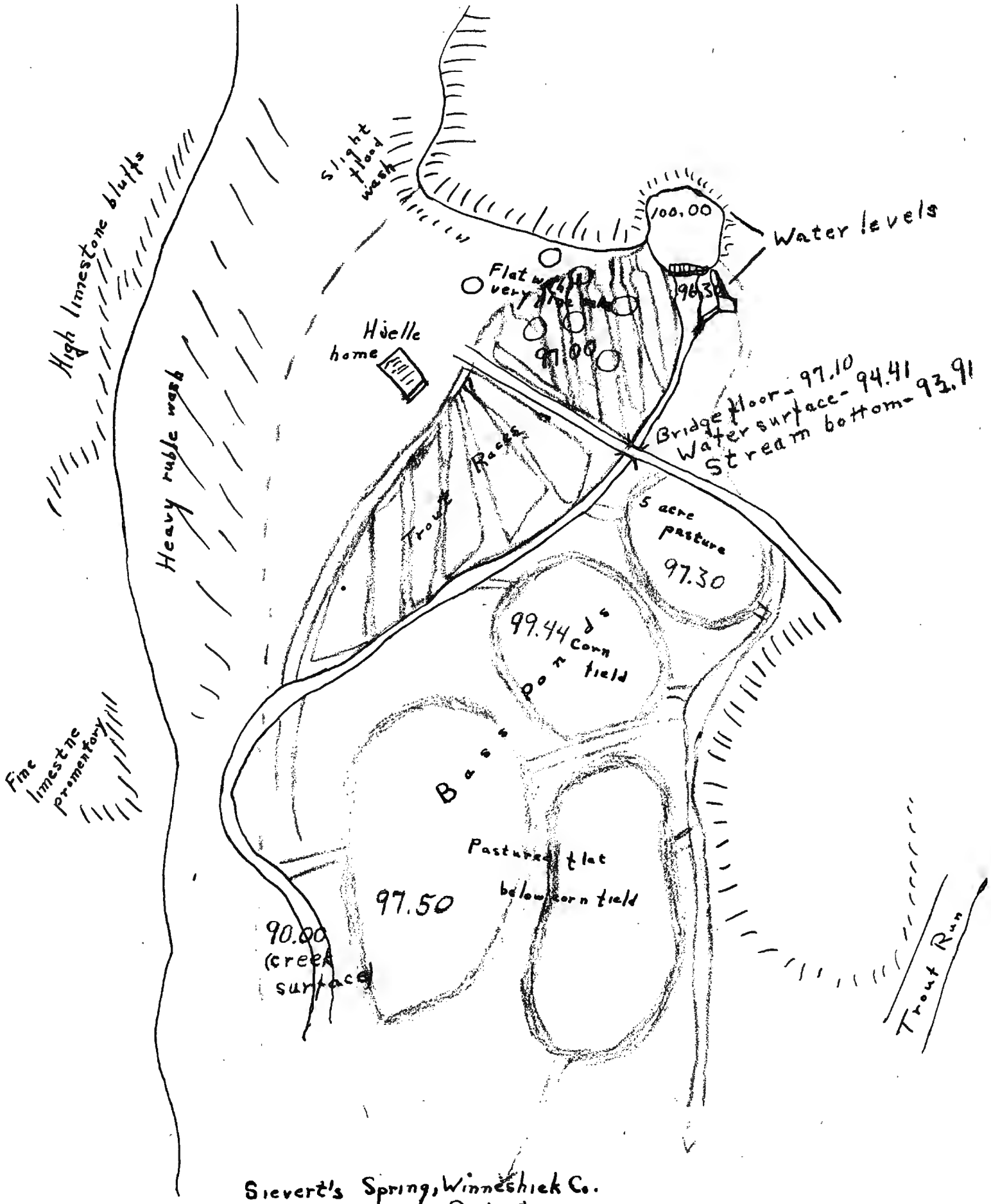
There is some flood danger to the proposed ponds here, as almost everywhere in Iowa. A heavyy ruble wash coming from the draw behind the house indicates something of a flood torrent. Mr. Altfillisch agreed that a flood wall or dike would be practicable, and one is sketched in on the rough map of the site.

The unusual promise of this site would seem to warrant development, provided better sites have not become apparent. The chances for getting a satisfactory combined trout and bass rearing station must be few and far between in Iowa. The location too is almost ideal for each station, as it lies near the center of the northeastern trout district, considerably north of the two present trout stations (Manchester and Strawberry Point). It is also central to many bass waters, and far north of the other bass rearing site proposed by us (OZark Spring, Jackson Co.).

This site lies near the center of a radiating system of all-weather roads, which is a prime recommendation (shared also, of course, by the Twin Springs project). The side road into the property is 1.9 miles long, of which 0.2 is now gravelled, as is the lane into the property. It would presumably be possible to get this side road completely gravelled into the property.

It is our recommendation that the state purchase this property, and develop it as a major trout and bass rearing station, one large enough to warrant a competent fish culturist in residence. Incidently, the farm home here is a fine brick building. Other improvements on the property should be considered, especially the spring dam, small power plant, good land, bridge, etc.

We further recommend and urge that the purchase include the limestone bluffs and woods above the valley floor. This would make a very fine nature preserve. Some of the limestone formations are very picturesque, including a conspicuous promentory like the prow of a battleship. The flat where the trout races are prospected is covered with large and fine oaks. These, with the spring and bluff, make of the place a favored picnic spot. With state development, it would no doubt become one of the important recreation centers of northeastern Iowa, and as such would be of particular value and interest to the Decorah folks.



Sievert's Spring, Winneshiek Co.
Rearing Station Project

Rough sketch - not surveyed. Levels by Chas. Altfillisch

TWIN SPRINGS, DECORAH, WINNESHIEK COUNTY

Examined July 7, 1932, by Salyer, and August 9, 1932, by Hubbs. Surveyed by Charles Altfillisch of Decorah, August, 1932.

This site is located in a Decorah City Park, at the edge of the city.

This much-pressed proposal for fish-cultural development was given considerable attention. On first examination it appeared to be pretty much of a political proposition, without particular merit. The information given as to the constancy of flow of the springs did not show much agreement. Some local residents claim that the uppermost of the springs (nearest the bridge) runs nearly dry in such years as 1930, while the next one to it diminishes greatly. Others claim that the flow is not greatly reduced, and there is even disagreement as to which of the two Twin Springs goes the lower. There is more generally agreement that the lower springs always maintain a good flow. Taking all evidence, we believe that the flow would suffice to operate a rather large trout rearing station, and that in driest years the station would not have to be cut down in operating pond surface more than one-fourth or one-fifth, as we have laid out the ponds. The flow is variously estimated at 1 to 3 million gallons a day.

The most disconcerting evidence as to the stream flow was given by the former owner, Mr. J. C. Beard. He claimed that the upper or head springs go dry 2 out of 3 years, over a period of 2 to 6 months in midsummer and fall. This evidence is so much at variance with other statements that we must discount it. Nevertheless, it is so disquieting as to make it very desirable to look further into the history of the springs before taking any action on a rearing station.

The upper springs are in three groups of about 4 openings each, close together, and joining in a few feet. The north and south groups flow about an 8 inch stream each, the east group a 3 inch stream. By their union, these springs form a creek 5 to 8 feet wide, 4 to 6 inches deep, flowing 2.2 ft/ sec. About 75 yards down from head springs another spring (2 inch flow) comes in from the bluff. The

upper springs of the lower group add a 6 inch flow; then about 10 yards down is a group of 4 springs united to give a 6 or 7 inch flow. About 50 yards farther on are 2 more springs with a flow 4 inches. Below the Park line the stream is about 12 to 15 feet wide, and averages 6 inches deep.

The total acreage of rearing ponds as planned is close to 2. This would be a very small bass station, and being cut up into so many units, as is virtually demanded by the lay of the land, would not be practicable for bass rearing. The idea of bass rearing here should be abandoned, in our opinion.

As a trout proposition, two acres of pond surface is not small, and is large enough for an efficient state-operated unit.

Should the size of the ponds appear to be overtaxing the spring supply, either in normal or very dry years, the excess ponds can be used for bass.

The fact that the pools would be shaded for a considerable part of the day by the high bluff especially those close by on the south side, indicates that they would be warmed slowly.

Advantages of the site include: roads good; near to state highways; central in trout stream area; close to city, making living quarters, labor, fresh meat products, etc., easily available; in city park (land costing nothing); development of local value and educational interest).

The water from the springs is clear and cold. Temperatures taken July 7, at 8:00 A.M., were as follows:

Upper springs.....48°F (air 69°F)

Springs 25 yards below.....48.5°F "

Lower springs.....49° F "

Stream below Park line.....49° F "

Stream 1/4 mile above mouth.....52° F (air 74°F)

As a result of this cold spring origin, the creek does not freeze in winter, and keeps the river open at the outlet. In fact, the ice in the river down to Burnette Dam does not become thick enough to cut.

The springs carry a sufficiency of dissolved oxygen. Tests made by Mark for Salyer on July 7 show:

Upper springs.....6.1 p.p.m.

Just before next springs enter.7.3 "

Below all springs.....8.5 "

We have good reason to believe that this spring water would be excellent for trout rearing purposes. For additional information on the stream, see our Stream Examination Report.

Disadvantages of this site are (1) the lack of provision for rearing bass as well as trout; (2) the heavy flooding occasionally experienced, and (3) the cost of constructing ponds. The flood danger is serious, even though it does not recur annually. Last year a flood went clear over the bridge, which crosses the usually dry gulch at the upper end of the site, and flooded the flat field below two feet, enough to cover the upper or Twin Springs proper. Evidence as to the height of the flood, in stranded trash, was clear. This flood is about the limit to be expected.

To meet this flood danger, a number of fairly expensive improvements would be called for:

(1) Eliminating the main kink in the dry creek (a point agreed on by Mr. Altfillisch, who has had much experience in flood control planning). This could be done by running a new ditch diagonally across the site, or by continuing the ditch down the road. The latter course seems decidedly preferable. It would simplify pond construction and operation, would eliminate all flood danger from the sloping bluff to the left, and would probably better take care of the flood flow. It would involve the purchase of the property just below the site, but that property is needed to round out the development anyway.

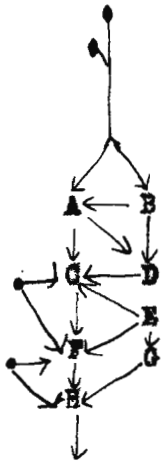
(2) Diking the site on the side toward the draw, as indicated on the plan, which shows at every 60 feet or so the height of dike considered necessary to give a good margin of safety. The two creek beds would demand concrete dams in line

with this main dike, which would also need to be concrete faced where the direct flood current would strike. It would not be desirable to continue the dike along the creek up to the bridge, because this would double the length and height of dike needed above the point where the dike on our plan leaves the gulch, would not add very much available pond surface and as it is planned, the upper springs are made to feed as much pond surface as would appear desirable.

(3) Concreting the springs, not only to protect from flood, but also to raise them a little for gravity flow to the ponds.

It may be pointed out that provision for flood water would be demanded in at least most of the other prospective sites.

If this site should be so developed, we would recommend that provisbn be made, as indicated on the plan for a system of overflow gates that would give considerable leeway in directing the flow through the system of ponds. The scheme proposed is as follows:



In addition, each pond should be independently drainable into the sewer system to be laid under the ponds.

The ponds as laid out would require very little digging, just about enough to give the material needed for the dikes separating the ponds. The material for the major dike would of course come from the dug ditch. The dark soil with considerable clay would seem satisfactory, especially if the ponds are not dug out, so as to bring the bottom near the (presumably) underlying limestone.

Whether the site is practicable, and whether its advantages overweigh those of other sides, should be determined by further study and especially by getting

estimates of construction costs for this and other sites. This we are not competent to give. We would warn against cutting much below the safeguarding limits suggested above, and on the accompanying topographic plan.

Our opinion, from evidence available to us, is that the Twin Spring project is inferior to the Sievert Spring project. And of course there is the possibility that the Twin Springs do go nearly dry at times, as claimed by some.

OZARK SPRING (ROLESTON SPRING), JACKSON COUNTY

Examination by Hubbs and Moe, August 6, 1932.

This is one of the best sites for a rearing station which was examined. It is furthermore one of the most beautiful scenic spots encountered in Iowa, and could be developed into combined hatchery and park to very good advantage.

The location of the springs is in Sec. 5, Brandon Township (85 N., 1 W.). They lie at the head of a little steep-walled valley, feeding a small creek which flows about 3/4 mile before entering the North Fork of the Maquoketa River. These main springs exude from the limestone head of the canyon, just above an old mill, the stone walls of which are still standing, and could be retained for their historic and very picturesque interest. The springs were high enough above the mill, to have been used to operate an overshort wheel. The fall provides ample aeration.

The owner of the property is said to be Mr. George J. Hill, who divides his time between Shelby, Nebr., and Colby, Kansas, where he has a son (Harold J.).

The temperature of the main spring is said to be very constant. It was 11.2°C. (=52.2°F.) on August 6. The creek near its mouth had raised to 16°C (61° F) at an air temperature of 22.5°C (72.5°F). On this day the river was at 22.7° C (72.9° F.).

The spring water roils slightly after a rain, but this would not be serious to pond development. The flow of the creek below the main spring was roughly estimated to be 1/2 cu. ft. per second on August 6, when a normal summer flow seemed to hold. (The estimate was made by constructing a rough wier just 20 inches wide, over which about three-fourths of the creek was forced to flow, giving a depth of 2.2 inches). Several smaller springs lie on the sides of the valley below.

The narrow valley is not subject to any large floods; in fact, remarkably free

for an Iowa valley. A few short draws enter from the sides. These carry enough water to cover only a part of the valley floor to a shallow depth, according to local testimony and flood signs. It is hardly thought necessary to built a flood conduit down both sides of the valley, as the floods would hardly be large enough to wash out the dikes, if these were provided with concrete spillways. An engineer should pass on this point.

We recommend, however, that a ditch be planned for the east side of the valley, to carry flood water from the gulches to the east, and to allow the separate drainage of each pond. This is very desirable, and seemingly feasible. A narrow roadway for construction and repair ought to be built down to the river. This could be built up so as to form the east side of the ponds, separating them from the flood ditch.

The floor of the valley is relatively level, and would require no large amount of grading. There is a limestone base, with a thin coating of clay and boulders near the head of the valley. Farther down, as indicated on the sketch, there is a deeper layer of clay, which is of solid consistency. If necessary, material for the upper dykes could be obtained there, 1/4 to 1/2 mile away. The lowest dyke could be safely built of clay we believe, with concrete perhaps in the old creek bed, if this dyke be built, as indicated, just out of the flood current.

From a rough pacing of the valley we have drawn up the sketch attached herewith. This must be very inaccurate in detail, but will give a general picture of the proposed ponds. About 7 ponds averaging approximately two acres each could be built in this valley. Pond 1 would require a long dyke, but this would appear required because of the rather steep gradient of the valley floor toward its head. This pond would receive the main spring inflow, and should be planned for trout rearing. Ponds 2 and 3 could probably also be used for trout, particularly as they would receive some additional spring inflow. Or perhaps better, these ponds (2 and 3) and all below should be devoted to rearing small-mouth black bass—Iowa's greatest fishcultural need. The cool water of Pond 1 would in that scheme be largely diverted into the waste ditch, so as to allow all the lower ponds to become warm enough for

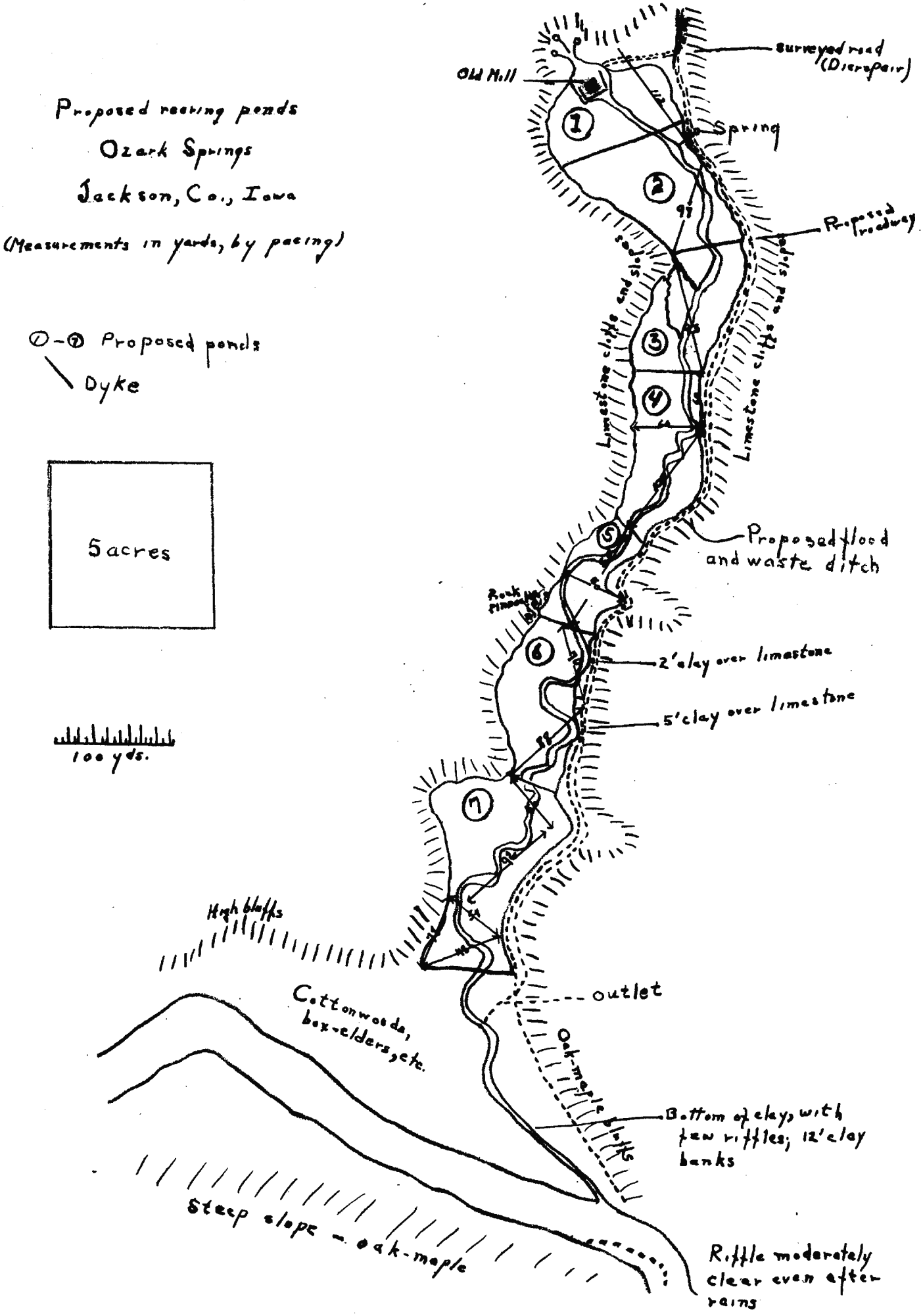
good bass growth.

This proposed site is fairly well situated to supply small-mouth bass to suitable rivers from the Cedar and perhaps the Iowa to the lower Volga. While not really centrally located in the southeastern part of the small-mouth territory, it is not far removed from such a center. Two or three hours extra run by distribution trucks is a less serious obstacle than a poor location, especially of a site with greater flood dangers.

A few miles of road not good in rainy weather separate the site from highways, but the present road is fair, and we understand a better road is being constructed into the vicinity of the site.

We recommend that this site be developed, primarily for small-mouth bass rearing, with the plan to keep an overseer on the grounds. This plan should meet the objection raised by some that the location is in the midst of an area of wild violators. I guess the wildness of these particular Iowans to be exaggerated anyway.

We found no other site as suitable for a rearing station south of the northern tier of counties. And no site there was large enough to adequately serve the whole eastern half of the small-mouth territory. It may be argued as a better policy to locate a second station in the southeastern part of this area, rather than to locate two in the northwest.


Proposed rearing ponds
Ozark Springs
Jackson, Co., Iowa
(Measurements in yards, by pacing)
①-⑦ Proposed ponds
Dyke
5 acres
100 yds.
Old Mill
surveyed road (Disrepair)
Spring
Proposed roadway
Limestone cliffs and slope
Limestone cliffs and slope
Proposed flood and waste ditch
Rock
2' clay over limestone
5' clay over limestone
High bluffs
Cottonwoods, box-elders, etc.
outlet
Oak-maple
Bottom of clay, with few riffles; 12' clay banks
Steep slope - oak-maple
Riffle moderately clear even after rains

REARING POND SITE ON CLEAR CREEK, CEDAR COUNTY

Examined by Hubbs on August 17, 1932, in company with Warden Sam O'Brien of Cedar Rapids. The site is on the S.W. 1/4 of Sec. 21, T. 82 N., R. 4 W.

This site was examined at the request of a number of members of the Board or Department, and at the special request of Mr. Ves Baur, who stated a particular desire to make a pond here at an early date, whether or not other sites might seem better for future development. While we recognized clearly, after making the examination and after making local inquiries, that Mr. Baur was prompted by a loyal desire to carry through to completion a political obligation of his former chief, we must express our opinion that this site has no particular merit, and that the state would have to sink another small fortune here to develop in the end a third or fourth rate rearing station.

The former owner, we understand, is or was a political figure of some prominence. Incidently, he is said to retain ownership of the flat which lies immediately below the project site, and which would need to be aquired by the state if the project should develop into a reasonable size.

This gentleman, we understand, was unable to induce the Supervisors to grade a road into his property. When the question of a "hatchery" development came up, he was more successful with the Chief Game Warden, who had the Department grade in a road to (and somewhat beyond) the lane to the property as the result of a reputed profer of $500.00 for this purpose. For this sum (or whatever was spent), one-fourth mile was graded. To obtain access to the parcel of land obtained by the state, another 3/8 mile of road grading would be required, and then a considerable amount of gravelling would be needed.

The local farmer, Everett Furguson (spelling?), advice of the politician-land owner just mentioned, got up the petition to the Iowa Survey for the development of a "hatchery" here, frankly stated that the idea was to follow the

the hatchery development with a state "park and game preserve" on the timber land above the site. This naive rural gentleman also let out the idea that he and petitioning friends thought of the hatchery as a place where fish would be raised so they could go there and catch them. When informed that it was not customary to allow fishing on state hatchery grounds, he replied "Well, I guess a hatchery wasn't what we wanted after all."

But let us return to Mr. Baur's plan to spend several thousand dollars to throw a dam across the lower end of the flat on the state property, to make a rearing station for present use. In our judgement the heavy floods and the lay of the land would call for a dirt dam 300 or 400 feet long, with a central concrete portion at least 30 feet wide and 20 feet deep in the center, measuring in the necessary foundation under the rather deep creek bed. The concrete would require a spillway, and a screen which would need attention. As a result two rearing ponds of approximately 2 acres each could be built, and could be fed by gravity from a diversion dam above. Or a single pond of perhaps 5 acres could be made by this dam to include the old stream bed. But this would make control of temperature impossible and would make seining very difficult. In either event the expense would be very high for the result obtained, and the plantwould not be large enough to warrant an overseer. And we would not be surprised if, in the absence of an overseer, some of the local residents might revert to their former idea that a "hatchery" is a place for fishing. The only opportunity for expansion would be to purchase more land from Mr. Haverner (should he be willing to sell).

It is true that the site consists of about 16 or 17 acres, but of this about 10 acres is hillslope and an acre or two is taken up by a road.

The geographical position of the site in reference to fishing waters, and its distance from any hatchery, are points of disadvantage.

The creek contains some spring water, but is warm (25.6° = 77.9°F on August 17) and roils badly after rains (as when examined). This is entirely too high for any trout development and not low enough to temper bass ponds, without running an

an excessive amount of water through them. No trout occur in the creek.

The stream floods at least 6 feet, according to the flood signs. But as the stream has 4 to 6 foot banks on the proposed site, moderate diking would protect the ponds. Not far below, however, the floods go over the whole flat.

The soil is good, being of fine clay below 18 inches or so of top soil. The stream bed is of gravel, deeply covered toward the side with mud of erosion origin.

In conclusion, we regard this site as a very unsatisfactory one from a fish cultural viewpoint. Of course we do not pass judgement on the question of political expediency involved.

We believe, however, that the site is a splendid one for an artificial lake, or rather as a part of such a site. A dam below the newly graded road (referred to above) would create a beautiful lake with good fishing prospects. This of course would require land purchases, a good dam, and the moving of the road which the Fish and Game Department so generously graded. The accompanying free-hand sketch map will give some idea of the lay of the land and of the form of the suggested lake.

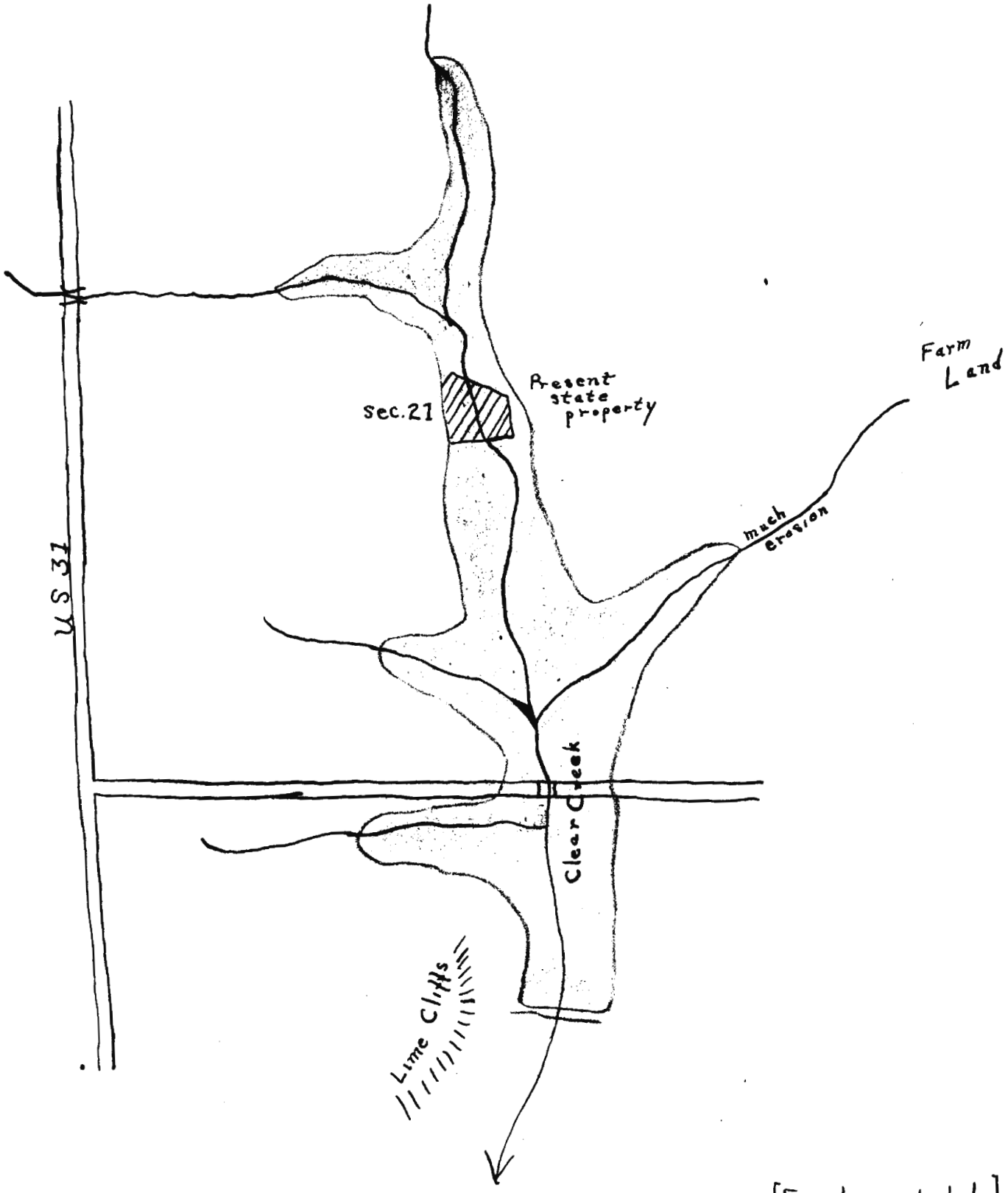
As the stream was about two feet wide and one or two feet deep where flowing with a moderate current in August of 1932, it should be easily sufficient to maintain the level of the suggested lake.

This artificial lake would supply the local desire for a place to fish, now almost non-existent. We recommend the consideration of this partial as part of the site for a lake, but not as a "hatchery" or rearing station.

Suggested Fishing Lake

T. 82 N., R. 4 W.

Cedar Co., Ia.



[Freehand sketch]

STORM LAKE REARING POND PROJECT

This project was examined by Salyer on August 3, 1932, and by Hubbs on August 15, 1932, on both occasions in company with owner of property, Dr. Pierce of Storm Lake.

This project appears to us of merit, considering all circumstances. The water supply is far too limited to produce a project of any considerable size, but a caretaker could be provided by combining this work with that of custodian of the adjacent Game Preserve (Little Storm Lake), caretaker of the state property between the lakes, which should be improved as a little camp and picnic ground for anglers and others, and fish warden for Storm Lake. There is a house on the state property now that should be repaired for the residence of the man to whom these three-fold duties should be assigned.

The water in the little creek which issues from the springs on this site is cold (51.5°F at11 A.M. on August 3 when aire was 82°). It is just on the alkaline side of neutrality (pH 71). It contains a fairly high iron content (1.4 p.p.m., probably in form of carbonate). There is no reason to believe this water unfit for Pond purposes.

The spring gathers on either side of the public road, as shown on accompanying diagram. It is now tiled almost to the lake where it forms a very small creek. There must be quite a bit of extra spring water, because a spring resevoir built nearby supplies another line used by the cottages (Dr. Pierce's).

It is generally maintained that the flow of the spring holds up well in dry years.

We believe that if properly graded, at least one fair-sized pond can be built. A little scraping would be required to give proper depth and to provide material for the dike. We would recommend that a small upper pond be put in first. If the water supply seemed sufficient a second, lower and somewhat larger pond could then be built, as indicated. On account of the low land toward the willows and the nature

of the soil there, there is some question as to how deep the second pond could be held with the water supply available.

Even the upper pond would probably require proper supervision in construction and maintenance. Possibly additional spring or artesian water could be tapped—a matter which should be looked into.

To test the soil, we made 9 borings (August 3). The soil encountered, from surface downward, was as follows:

Hole 1 (West-central) 5" turf, 15" loam, 20" somewhat sandy clay+ then water.

Hole 2 (central): 6" turf; 21" loam; 8" clay, with some limestone fragments and sand; then water.

Hole 3 (east-central): 5" turf; 14" loam, becoming sandy below; 17" clay; then water.

Hole 4 (southwestern): 21" of sticky loam, with some clay; water appears; 10" sticky clay.

Hole 5 (north-central: 19" mucky loam; water appears;9" dark, sticky clay.

Hole 6(northweastern; lowest end): 19" sticky muck; water appears; 5" more of mud; then 8" with some sticky clay.

Hole 7 (southwestern; nearest reservoir): 17" sandy loam; 8" sandy-silt loam; 7" sandy yellow clay.

Hole 8 (south-central): 27" sandy loam; then sandy clay.

Hole 9 (southeastern corner; highest part of property) 23" rich granular loam; then plastic yellow clay, with scattered gravel.

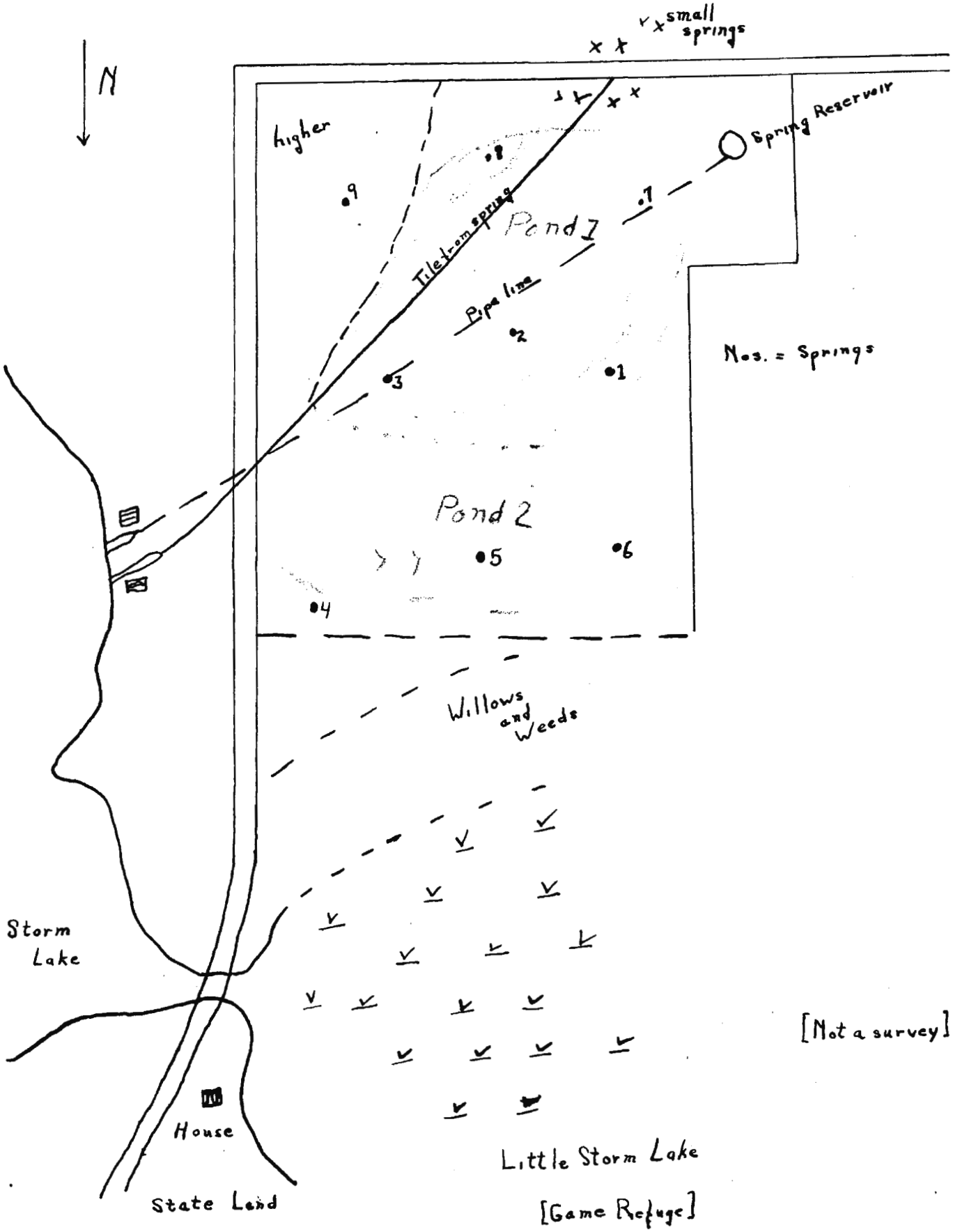
Pond construction should be kept 50 yards south of present game refuge fence.

A pond could be built easily which would have its main axis NE-SW and have a N-S width of over 150 yards and an E-W width of over 170 yards.

We would recommend that the pond be used for rearing large-mouth bass, when or if a second, lower pond is built, we would suggest it be used for rearing bluegills.

Sketch of Proposed Fish Rearing Site

on Property of Dr. Pierce, Storm Lake



CHRISTOPHERSON SLOUGH, AND SLOUGH IN DICKINSON COUNTY

1/2 MILE NORTHEAST OF SWAN LAKE

Examined by Hubbs on August 11, 1932

We were taken to this slough by Messrs. Mark and Speaker, in an attempt to find Christopherson Slough, which is being considered as a rearing pond. From what we heard of Christopherson Slough from Mr. Baur, we are inclined to agree with him as to its possibilities, though we hesitate to make any recommendations without an examination. It is unfortunate that the mistake in guiding us to the wrong slough was discovered when our available time in the vicinity had been consumed.

The slough we did examine lies just east of the outlet of Swan Lake. The warm water is rather dirty, and choked with bulrushes laterally and with much sago pond weed, coontail, Nitella, etc. The bottom is of soft muddy muck, in which one sinks about 6 inches. There is no outlet in the summer. The deepest water is only a foot deep, but the pond appears permanent. There is only about two acres of open water, though a much larger area is overgorwn by rushes. The only fish we could catch was one young black bullhead, and the only other fish seen was another bullhead which had been killed by a heron.

Very many predators were seen on our half-hour visit: 70 night herons, 12 great blue herons and 4 American bitters were counted. These would need be reduced in numbers if a nursery lake were constructed here.

Food in the way of dragonfly larvae and frogs abounded.

The marsh occupies a natural depression with a narrow outlet between hills. We believe it could be very easily dammed by a dirt dam, to form a nursery lake 6 to 10 feet deep, and with an area of perhaps 40 acres. The bottom should permit easy seining after the rushes die down. A rich growth of vegetation and of fish food should be expected.

From the soil and from the lay of the land, we would suppose that the lake would hold its level quite well. It ought to provide good fishing if it failed

for any reason as a nursery lake.

The same statement could be made for the proposed rearing pond at Christopherson Slough. According to Mr. Baur's later statement, the slough as looked over lies about 1/2 mile southeast of Christopherson Slough. The development of both sloughs, ought to be considered, with the idea in mind of creating here a major nursery development, with a resident caretaker in charge.

The advantages of a dammed slough over a natural lake for rearing purposes are very real. The ability to drain the lake is very important.

We strongly recommend that the question of establishing in this region at least two and perhaps several drainable nursery lakes, for rearing small mouth bass and probably pike as well, be given very serious consideration. If the several ponds, not necessarily all to be built at once, can be located fairly close together, the advantage of close management by a resident overseer is a matter of real importance.

PIGEON CREEK POND PROJECT

Examination by Salyer, August 9, 1932

This would be a grand undertaking if it was only of a greater area. But Mr. Rapp assures me that he has covered all the surrounding country and knows this particular area to be unique for this region. A pond of from 7-9 acres can be established here by erecting levees which would be largely spring fed. There are several springs flowing from the base of the hills on one side of the proposed pond which were running around 900,000-1,000,000 gals. the day I visited the site. The water temperature of these springs was 53.5° F and the air was 92°F at 3:00 P.M. Watercress was abundant and also various other plants requiring cool or spring water. In fact, once the pond is completed I'm sure the right types of vegetation will speedily spread over the pond without artificial planting from the reserve stock which will be left over on the undredged part of the pond bottom.

The pond might be formed on a couple of loops of Pigeon Creek which were the creek channel proper before straightening of the creek took place.

Care will have to be taken to stay far enough back from the creek's rim in erecting levees. The excavations should be made in the situations designated to Mr. Rapp. Also, the excavated bottom should conform to the tapered basin type explained in detail to Mr. Rapp. Exacvated bottom must be carefully puddled and the infall of the creek bank at one spring outlet at present should be protected by a line of piling before levee is thrown in behind it. Material for this and for shelter structures is more than abundant here. The productive banks (submerged) on the side of the springs area should be left undisturbed as set forth to Mr. Rapp who has an excellent appreciation of their function and value in a bass pond. The large areas of wild hemp should be cut and burned before filling the pond, as it takes years for this plant to rot and such debris is undesirable in this type of pond.

The hills surrounding one side of the pond are well wooded and will afford attractive picnic grounds. There is an initial hog wash starting here which has not

yet reached a stage where it can't be checked.

There is need for an accurate survey and topographical map of this site before final recommendations can be made. One map should show conditions as they now are and another copy should be available on which to mark points for excavations and levees lines. I have gone over this phase with Mr. Rapp in more detail than can be set down here and will be glad to indicate excavations, etc. on a map when such is available. As indicated to Mr. Rapp, it is desirable to acquire a rod or so of the cornfield on the NE side of site in order to complete the natural boundary of the depression in this area.

Before final completion of plans and starting to work on project, an experienced engineer, preferably the present man retained by the Park Board, should look at soil conditions and render opinion on its water holding ability. I am not sufficiently aquainted with this type of soil to risk a final opinion although the lagoons of water on site at present argues well for this phase of the pond plans.

Against the favorable features of the site set forth in the above text, the distance the site is from a paved road and its relatively small size must be considered. But if this type of water supply and facilities for impounding same are as unique in the Council Bluffs area as Mr. Rapp maintains (and so it appeared to me in my trip over this area), then they outweight the objections as to size and inaccessibility. Finally, if the artificial lake program for southern Iowa is carried forward to completion, this pond would or could then be made into a wonderful bass fingerling nursery. Meanwhile it could be developed into a very good big-mouth bass pond. However, search should be continued for a larger area of the same general type. This does not mean that if such an area can be found, the present area should be neglected. It should then be turned into bass fingerling production.

EXAMINATION OF VARIOUS SPRINGS SUGGESTED AS HATCHERY OR REARING POND SITES

Big Spring, Allamakee County

This large spring, located in NE 1/4 of Sec. 11, T 96 N., R. 6 W., forms a feeder to Yellow River. It is located near the landmark known as "Stone House". A brief examination was made by Hubbs on August 5, 1932.

The discharge of these springs is muddy after rains. In 1932 it was very muddy, but local residents said this was unusual. The springs lie close together on bottom land, below level of surface flooding. The banks of the outstream are generally low.

This site is regarded as unsuited for hatchery purposes.

Dunning Spring and Cascade, Decorah, Winneshiek County

Examined by Hubbs, August 8, 1932

This beautiful spring issues from a cirque in the limestone, and forms a small feeder to the Upper Iowa River. the water is clear and cold (9.2°C = 42.6°F, where issuing from base of cliff halfway up the hill). The flow is moderately large (1 1/2 inches deep where falling freely over a 5 foot brim in its cascade. This indicates a flow of roughly 3/4 cu. ft./sec.

Any extensive fishcultural developments at this site would be forstalled by extensive floods which come in from a side-draw near the spring. The only development which seems at all practicable would be the building of a pond of at most one-half acre size, by throwing a dam across the base of the cirque. This would involve a rather expensive construction, as the depth of the pond at the lower end would be about 10 feet. A higher dam would produce a somewhat larger pond, but is out of the question, not only from the ground of expense, but also because this would flood the beautiful cascade below the spring.

Our recommendation is strictly against any state expenditure here for a rearing pond or hatchery. The creek itself however, could be developed to furnish a small

amount of trout fishing (see "Field Examinations of lakes and streams".)

Milanity Springs, Winneshiek County

Information obtained by Hubbs from Prof. Strunk at Decorah, August 8, 1932.

These springs have a rather heavy flow, though they fluctuate considerably in their discharge. They arise at the base of a bluff, giving rise to a small stream which flows across the flood plain to the Iowa River. The location is about 3 miles northwest of Decorah, 1 1/2 miles from a road.

This description would seem to rule out this spring for any fishcultural development by the state.

Coldwater Spring, Winneshiek County

This spring, located near Bluffton, in Bluffton Township, Winneshiek County, is recommended for examination by Prof. Strunk (December, 1932). He says it has a considerable flow of clear water; arises at the base of a cliff about 80 feet high, and flows out through a natural gulley receiving very little flood water, as the surface slope above the cliff is away from the spring. He believes it would be easy to dam the gulley for rearing ponds. The site was not examined by us, but we recommend that it be examined by Mr. Moe or some other Department representative.

Prof. Strunk reports the existence of numerous springs in the Decorah region, up to Bluffton and beyond, and about the same distance northeastward. A thorough study of all these would seem to be in order.

Dutton Spring, Fayette County

This fishcultural possibility was examined August 9, 1932, by Hubbs, in company with an interested party, Mr. Jenkins of West Union. The location is NE of West Union, in SE 1/4 of Sec. 34, T. 95 N., R 8 W.

This spring, of moderately large size, flows out from a steep hillside, just below Dutton Caves. The initial elevation is high enough to permit gravity feed onto a terrace 100 ft. wide by 300 feet long, suitable for 2 to 5 parallel and independently fed raceways about 12 x 250 feet in size.

Between this terrace and a flood valley, is a walnut-maple-elm flat of about 2 1/2 acres, with several natural depressions already existing. This would materially lessen the amount of excavation needed for pond construction. The creek bed is low enough to permit independent drainage of the ponds.

The small terrace and the 2 1/2 acre flat would cover the reasonable fish cultural possibilities, because the flood valley from the right would make developments farther downstream impracticable.

The water is clear, is said to be constant, and is plenty cold (9.0°C = 48.2°F on August 9).

Arguments against a fish-cultural plant here are:

(1) Its limited possibilities. This might not be serious if the site were developed by individuals, county or state as a combined park and rearing station. The very picturesque scenery would make such a combination desirable.

(2) The site is close to the existing Strawberry Point unit and to the larger sites in Winneshiek County.

(3) There is at present no road into the spring, although local residents drive in to the top of the hill overlying the spring on a woodland road, and also by road to near the mouth of the spring creek, about 1 1/2 miles below. A road of course could be constructed up the valley.

Our recommendation is that the county or state obtain this property for development as a park, with the reservation that fish cultural developments may be installed if or when this appears desirable in the expanding fish program.

Falling Spring, Fayette County

The spring, located in Sec. 35, T. 95 N., R. 9 W., was not examined, but some infromation on it was obtained from Mayor Johnson of West Union (on August 9, by Hubbs). The flow is said to be small, about 3/4" deep over a fall 2' wide (this would indicate only 1/10 cu.ft./sec.). The stream flows down over rocks onto a flood plain.

From this account, we would not consider this site worth any fishcultural development.

Beulah Falls, Clayton County

Examined August 8, 1932, by Hubbs

These falls are formed by a large spring, which issues from the side of a bluff and drops almost into one of the upper branches of Bloody Run. Location: Sec. 21, T. 95 N., R. 4 W.

The branch just above the entrance of the falls is cool - 17.0°C = 62.6°F on August 8, when the air stood at 25°C = 77°F.

A flat lies between the bank of the creek at the falls and branch. However recent flood signs indicated floods of at least 5 feet, and the lay of the land is not well suited to pond development.

We recommend against establishing a hatchery or rearing station at these falls.

Elkader Fair Grounds Well, Elkader, Clayton County

Examined August 8, 1932, by Hubbs

Some pressure has been brought to bear for a fish rearing pond or hatchery at Elkader, on the Fair Grounds. The suggested water supply is an artesian well, said to be about 400 feet deep, after depth was increased some time ago. The four-inch pipe feeds two sets of drinking fountains and a horse trough. The head is said to be about 16 feet above ground level. The temperature was found to be 11.4°C (= 52.5°F).

The supply of water is utterly inadequate for any state fish cultural establishment. There is a depression between the road and the railroad grade which might be filled from the overflow of the well, to serve as a small, local rearing pond. The size of this depression is about 100 feet by 300 to 400 feet, not counting in about 100 to 200 feet of floodland down to the drain through the railroad grade and the road.

The depression could be easily dammed by a dirt dike, but it is very doubtful if the inflow would equal the seepage, unless the pond were very thoroughly puddled with clay. The soil is a loamy sand, with practically no clay content.

Our recommendation is that this be considered wholly inadequate for state development, and that the state should not recommend local action.

Big Spring, Clayton County

This spring, located in Sec. 32, T. 94 N., R. 5 W., has been suggested as a possible hatchery or rearing site.

This spring issues from the cliff at the side of the Turkey River flat, flows over a fall into a pool and then runs only "about a block" into the Turkey River.

The situation does not appear fit or safe for a rearing station, which is the real need of the region.

The site was not examined, but the information given was obtained (by Hubbs) from residents of Elkader, August 8, 1932.

Fountain Spring, Delaware County

These springs are located in the middle of Section 16, on the south side of the road 1 1/2 miles NW of Greeley.

This site was suggested to us by Mr. Olcott. The field examination, conducted By Dr. Hubbs on August 7, 1932, gave no promise for a rearing station development, as the lay of the land argues against raceway construction. The stream, however, has good prospects for development as a fishing stream, or better as two large trout ponds. This project is discussed under "Field examinations of lakes and streams".

McLeod Springs, Cedar Rapids

Examined by Hubbs on August 16, 1932

These springs are located on Highway 13, within the city limits, nearly one-half mile beyond the Izaak Walton Bass Pond. They are controlled and housed over by a large dairy, which uses the water for bottling and sale. There is said to be always an overflow, and many people collect the water at the highway for drinking purposes.

The water is always clear (found so by us after rain), of fine taste and cold (10.4°C = 50.7°F). The spring produces a swift little creek 5 feet wide, which develops a cress bed before entering a largely surface-fed branch a few rods below spring. This other branch registered 26°C = 79°F) when examined, and its whole

flat is flooded.

The private control of this spring, the flooding of the flat below and the high summer temperatures of the other branch render this site undesirable for either a trout or bass rearing station.

Proposed Rearing Pond at Spring near Mason City

This proposed rearing site, on the Frank Renshaw place out of Mason City, was examined at Mr. Crane's suggestion by Salyer on July 15, 1932.

Water supply.—Springs, with a temperature of 54°F (July 15, 2:15 P.M.; air 92°F). Three hundred yards below springs the creek had warmed to 79°F. Total output of springs is a 2-inch pipe running half full (roughly cu. ft./sec.).

Flooding.—Farmer's pond here washed out repeatedly.

Lay of Land.—Very steep water shed.

Conclusion.—As a rearing proposition for the state this is absurdly inadequate. A very small trout pond could be built here, or a larger pond for warm-water fish, but it looks like a project for an individual rather than the state.

Proposed Spring Pond at Wellsburg

Examined by Salyer on July 12.

This site had been suggested by an ex-warden. When the site was examined, the springs were found to have run dry.

EXAMINATIONS OF OTHER REARING POND PROJECTS

Gravel pits, various localities

At a number of localities over the state there are old gravel pits, which have been used or have been suggested for use as rearing ponds. These sites are in general not regarded as suitable for major state development, because the ponds are all impossible of drainage (except by expensive pumping), and are mostly if not all impossible of complete seining. The prospects are mostly at least not good enough or big enough to warrant placing a man in charge. Consequently, illegal fishing is not excluded.

For local projects, however, utilizing some of these old pits as rearing ponds can hardly be condemned. The state might well cooperate by providing fry for stocking and by using nets with local help, for seining out the fingerlings or yearlings.

Some gravel pits at Lakeview have been recommended as suitable for rearing ponds, and we understand that Mr. Speaker has information regarding these.

Large Bass Pond Project at Sabula

Examined by Hubbs, August 18, 1932

This site is a 200-acre march lying between Sabula and the Mississippi River bluffs. The owner tried to sell the marsh to the state (through Mr. Albert) for $14000, and later offered it for $8000. Mr. Babcock expressed the opinion the land could now be had, if bought "right", for $10 per acre.

This former owner spent much money unsuccessfully trying to pump the marsh dry enough to make it into onion land. The land was not tiled, but to do so would have been of no avail. Mr. Babcock stated that a 3'6" to 4' river stage starts to flood the marsh, and that 3 or 4 feet is the normal low water stage. Some falls the river stage is as high as 6 to 8 feet, which floods the marsh to a depth of 2 to 4

feet.

The marsh fills from the river, the inflow bringing in many bass, but also gars, dogfish, etc. This year (1932) 5800 or more bass fingerlings were taken from the marsh, but many more were left because the marsh is very hard to seine, being thickly overgrown with rushes.

There is an upper pond of about 15 acres, partly covered with pond lilies and partly open. This pond would be valuable, as bass could be held over here, according to Mr. Babcock, by diverting a spring into the pond. This upper pond is partly owned by another person. The main marsh is divided into three parts. Below is a 12 to 15 acre pool, into which the marsh can be drained when the river is low enough, because it is through this pond that the marsh communicates with the river. The connection is through a 12 to 16 inch pipe, with gate. The pond is well separated from the river otherwise, by a high dike.

Despite the great disadvantage of inability to drain the marsh at will, the site has some good qualities and should be further considered. Growth ought to be good. Nearness to the Sabula Rescue Station would bring advantages in the way of shipping fish out and in managing the area. It should be possible to virtually eliminate such predators as gars and dogfish when the river goes low enough to drain the marsh. The reinvasion of these fish could be prevented by screening the intake. The pond could be stocked with bluegills or large-mouth bass taken in the first part of the rescue season. These fingerlings should then get a fine growth and be ready for fall shipment. The connection with the river could be kept closed until shipping time to hold up the level of the pond.

We do not go so far as to recommend this marsh for development into a huge rearing pond, but point out some advantages in such a development and urge the further consideration of the project.

Proposed Rearing Ponds on Scott Farm, near Charles City, Floyd County

Examined by Salyer on July 13.

This project consists of an old loop of Cedar River about 350 yards long,

60 feet wide and up to 4 feet deep, located 100 yards from the river.

Flooding.—The river overflows into this pond two or three times a year.

Temperature.—A very warm (obviously stagnant) pond: 95°F at 2:30 P.M. on July 13, with an air at 88°F (temperatures odd, but checked by Mark).

Water.—pH 8.9.

Shade.—None

Vegetation.—Coontail and Nymphaea (lilies) plentiful.

Conclusion.—Impossible as a rearing pond.

Rearing Project at Cedar Falls

Examined by Salyer, July 11, 1932, at the request of Mr. Bode.

This project involves a pond or shallow pool which has already been constructed, ~~which has already been constructed,~~ at an obviously considerable expense. Some fine masonry was put in, but with poor engineering. The outer retaining wall was cracked and did not hold water when examined. This seemed to us to be an inexcusable waste of public funds.

The connected rearing pond site is about 10 acres of swampy land near the city water and municipal light plant. This appeals us to as entirely unsatisfactory. The land would need be entirely diked to keep out floods from the adjacent creek.

The water supply is preposterously insufficient or expensive. The proposal is to dig a pond or ponds then to depend on bottom seepage, which would make the handling of the ponds and fish almost impossible. Or this seepage supply being insufficient, the city would sell water from the mains at a flat rate per month. The city water is very cold (51°F in well on July 11, 2:00 P.M., with air at 90°F).

This project appears to us to be without any natural merit. Of course we do not pass on its political merits.

Rarick Ponds, Clarke County

Data by Mr. Rarick, supplemented by Mr. Salyer.

These three artificial ponds are located in Sec. 8, T. 72 N., R. 25 W.: 6

miles west of Osceola on Highway 34, and then one mile north; 3 miles due east of Murray. They are owned by E. E. Rarick of Osceola, and are 130 feet wide, and respectively 55, 65 and 75 rods long, and respectively 8 to 10, 10 to 12, and 12 to 14 feet deep. Mr. Rarick reports that:

"Pond No. 1 and 2 are stocked with bass, crappie and catfish. Pond No. 3, I sold the water right to the waving company on thirty-four and last year was so dry and the water so low that I did not re-stock it but will do so this spring from the other ponds which are alive with fish."

These ponds we assume are not drainable, which argues strongly against their development by the state as a major nursery project. They are, however, located fairly centrally to the region of proposed artificial lakes, which will call for a large quantity of fish for stocking purposes. Further examination is called for.

Rearing Pond Site in Cedar Rapids

Examined by Hubbs on August 16, 1932

This site lies S and W of McLeod Springs, on the stream fed thereby. It is not far from though above the flood stages of Cedar River, a short distance above the municipal water works. The actual flat in mind is one of perhaps 4 or 5 acres, just below the W. C. F. & M. Interurban tracks. Most of the 400 feet width of the flat is subject to flood by the stream, which is here much more affected by surface than spring water. The creek temperature at the head of the flat on our visit was 25.4°C = 77.7°F. The stream is here 8 feet wide and 1 foot deep, where flowing with a moderate current.

The soil is a dark mucky loam with gravel streaks. This did not seem particularly satisfactory for pond bottoms. Mr. E. J. North, who showed us the site in company with Warden O'Brien, claims however, that this is similar soil to that at the small League Bass Pond, where little leakage is experienced. We suspect,

however, that the hillside soil there has more clay and is more impervious to leakage.

We found little in this site to appear particularly promising. The character of the water and soil are none too good, and the soil may be poor. The lay of the land is fair, except that extensive ditching would be required to insure against floods. Excluding the ditch, dikes and the higher parts of the flat probably not more than 3 acres of actual pond surface could be developed here. This might be large enough for a local or League project, but is hardly large enough to warrant state development.

Farther down, on or near the grounds of the Municipal water works, there seemed to be possibilities of a larger development, though the high dikes around the plant seemed to indicate flooding from the river. Careful surveying and further examination of water supply, soil, etc., should precede any serious consideration of this site.

Ice Pond on Fayette County Farm

Examined August 9, 1932, by Hubbs in company with West Union sportsman.

This pond lies 2 miles south and 1/2 mile west of West Union. It lies close to "Stansbury Stream", tributary to Volga River. It has no outlet, at least at normal water levels. It is spring fed, and receives some tile water, but at least ordinarly not enough to cause an overflow, nor to hold the temperature down. On August 9, in mid-afternoon, the surface water registered 26.5°C = 76.6°F, only 1°C lower than the air temperature at the time. This was formerly a gravel pit, but the bottom is now of mud. The pond has low banks, and lies in a pasture on the county farm. The depth is said to be 8 feet, and there is relatively little shallow water.

The intent has been to rear crappies here. Two years ago (1930) 6 adult crappies were put in. With a small seine we were able to seine only two black crappies, and these were in very poor condition. We did seine about 75 young and yearling bluegills, mostly rather thin but in much better condition than the crappies. There seems to be no record of introducing bluegills.

In the way of forage fish we seined two adult golden shiners and a few Johnny darters; we also seined a few crayfish and some insects. Food can not be regarded as abundant.

This very small pond is no site for a state rearing station, though it might be operated to advantage by local sportsmen. We suggest the pond be abandoned for crappies, and that it be devoted to bluegills.

As a management policy we suggest:

(1) Throwing in a pound of superphosphate fertilizer once a month through the open season.—To increase good growth.

(2) Putting in 2 or 3 wagon loads of gravel, to be placed in low piles about 3 feet in diameter, 5 to 10 feet offshore—To increase spawning.

(3) Filling one corner of pond with loose brush—To shelter the small fish.

(4) Seining out yearlings and excess adults, if any, late each fall.

Rearing Pond Site on Spring Run, near Lower Gar Lake

Examined by Hubbs on August 11, 1932

Through Mr. Speaker we heard that there is an expressed desire to dam up this little inlet to Lower Gar Lake, to make a rearing pond.

This stream where examined by the bridge near its mouth was moderately clear but easily roiled; cool; almost without aquatic vegetation; with bottom of sand in current and of mud in pools; with low banks; 4 feet wide in current (12 feet in quiet pool below bridge); generally very shallow (2 inches) but as deep as 1 1/2 feet under bridge. Pullheads are common, and might be difficult to eliminate from proposed pond.

The soil of the region is generally sandy and we doubt seriously if the small flow of the creek would hold up the pond level in dry years.

The lay of the land is fair, for the pond would occupy what is now a spring or wet-weather marsh. The location so near the major fishing lakes is very favorable.

We were not greatly impressed with this site, though recognizing its possible

advantages. If the site be regarded with favor we recommend that a trial dam of sheet piling or dirt be thrown across the creek first, to determine whether the water level will hold up in the fall.

Ed Dalton State Lake, Jackson County

Near Preston, examined by Hubbs and Moe, August 7, 1932.

The proposal to buy additional land to construct a new pond here, for bass rearing, is discussed rather unfavorably in our treatment of this lake (see Report on Lake and Stream examinations).

Prairie Lake Rearing Pond Project, Benton County

Examined by Salyer on July 10, 1932

An attempt has been made, led by the Vinton Chapter of the Izaak Walton League to make this old river channel pond into a rearing pond.

The characters of this pond as found by us are briefly summarized in our lake report, to which reference may be made. These are wholly unfavorable for a rearing pond project.

We heard that the brood bass put in were killed a day or so after being introduced. The Chapter put in a wire fence to hold in fish, assuming the river would only flood in from one direction. However, on at least two occasions this year it flowed in from at leaast two directions. The fence was too short: it should have been 4 feet high on north side and 5 feet high on the south.

We conclude that this project is a preposterous one, a waste of time and effort.

Lake Comar, Story County

A private artificial lake near Story City in Story County has been suggested as a site for a hatchery.

The following information was furnished Mr. Crane by the owner, Fred C. Corneliussen:

"I have been led to believe that Lake Comar has been recommended to you as a likely spot for a bass hatchery but while visiting with Dr. Boone a few days ago he suggested that I write you giving some of the facts of the place.

"In 1879 Mr. Watkins the owner at the time struck an unusual large flow or rather artesian, which cause considerable comment and has made the place a landmark in this section of the state. He latter dug an artificial lake and this property I aquired in 1914 and stocked the lake with bass and crappie. I latter built a small hatchery which I operated for several years for my own experience and amusement.

"The place consists eighty five acres, has perfect drainageand artesians may be had on any spot at sixty foot depth."

Trout Pond Project, Cedar Falls, Blackhawk County

The trout pool in the city park at Cedar Falls, and the proposed rearing pond site below the city power station, seem to us to have little value, except as a local park or political project.