

Report to IDNR River Programs
Interpretive and Informal Biological Reconnaissance
Des Moines Metro Area Waterways

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River Segment: Raccoon River

Interpretive Theme(s) suggested for this river segment: The changing landscape of Central Iowa—the impact on rivers and streams.

Stream Reach: Van Meter to Walnut Woods

UTM Beginning: 0419644 E – 4599161 N—Van Meter access (Two Rivers Alt. Access)

UTM End: 0437595 E – 4598783 N—Walnut Woods State Park ramp

Approximate mileage: 18.7 miles

CFS average during this time period: 1800 cfs

Description and interpretation of this section:

This section of the Raccoon River is an easily paddleable and mostly accessible section of river. It meanders through a landscape that is changing rapidly due to anthropogenic causes. It is a paddle that can reveal those changes and their challenges to the observant paddler. As both agricultural cropping and urban development expand, they collide on the watershed of the Raccoon River. The river becomes a reflection of those changes. The challenges the river faces are many, and are largely the result of human actions. While it can be argued that all rivers in the region have similar challenges, it seems that the Raccoon is facing the changing landscape more imminently and the results are more immediately obvious. Have we the will and the ability to alter these changes and impact the river in more positive ways? Only multiple paddles over many years will tell. But paddlers on the Raccoon should be aware of what they are paddling through. It is a story that is told in the river.

Some areas of this stretch of the Raccoon contain evidence of the river's distant past: soft shale rock overlain by even softer mud stone; glacial till exposed at the base of a river bank's meander; iron concretions lying on a sandy beach; old mussel shells bleaching high on a rocky shoreline. Other areas have evidence of the river's more recent past: cement chunks and smashed cars along its banks; corn and soybean rows falling into its waters; steel barriers along the shoreline; an eroded storm sewer pipe dipping into the water. The river records its history for all to see—at least for those willing and able to read it.

The river wanders through a landscape that is both wild and tamed. In places, the riparian corridor of trees is quite wide, though there is little public land along its length. Hills and valleys, especially to the south of the river, are often heavily treed, apparently

too steep or too poor to be farmed. Thus far, the steady march of West Des Moines housing has yet to show much impact in this area. Here, the woodlands are typical of other Iowa rivers: lowland hardwoods near the water and upland hardwoods farther up-slope. Many of the upland bur and white oaks and basswoods are quite large. The oaks have likely been there at least since early Euro-American settlement. The basswoods and some sugar maples portend what this woodland will become over the next century: a maple/basswood forest, since oak seedlings cannot grow in the shade of their parents. Near the water, silver maples, cottonwoods, and box elder tend to dominate, tolerant of frequently wet roots and occasional inundation. Mulberries and green ash sometimes join them and riverbank grape and poison ivy vines drape the banks. Willows take a stand as “willow wedges” on the beaches found on the inside bends of the river, their roots holding the slippery soil in place against the fickle river currents. In between, red oaks, walnuts, ash, hackberries, and even some buckeyes and shagbark hickories can be found, with some quite large and as old as the oaks found above them. The buckeyes and hickories seem to be confined mostly to the large wooded area to the southeast of Van Meter.

On the north side of the river, the story is different. There, the wooded riparian corridor is often narrow—only a few trees wide—or completely absent. The scattering of trees in a few areas may resemble a savannah to passing paddlers. In some brief stretches, there is a buffer of grasses, usually brome grass. Often, however, there are soybeans and corn grown to the edge of the river. There, the rapid rise of the river during now frequent heavy rains scours the banks, causing rows of crop to fall into the river. The banks along the entire distance reflect recent flooding: they are nearly always steep, often vertical, unvegetated, and vary from 3-4 feet in height to 10-14 feet in height above the water. Such scouring is not new, as human attempts to control the river’s flow are easily visible. Just east of Van Meter, the river appears to have been channelized at some time in the past. Rip rap is common along the river and cement chunks and slabs, often with re-rod still imbedded, was dumped along the river’s edges, along with clay bricks and tile and other assorted debris. The absence of large sections of this rip rap is testimony to its being washed away, and to the ineffectiveness and the casual disregard with which we once treated our rivers. Even flattened cars and other machinery were used in the past—much to the chagrin of modern river-rats and recyclers. More recently, large limestone rocks have been used. While these are placed more strategically and effectively, the river sometimes has its way with them, as well. They can be seen along the section of the river where seven pumping station structures have been built, the rocks protecting them from being overtaken by a flooding river’s current. Farther downstream, mostly east of I-35, a more expensive and extreme form of river control can be seen: walls of steel, set with deep pilings pounded into the river bottom, have been used to attempt to keep the river from meandering into human structures and infrastructure. Rivers tend to eventually ignore our attempts.

As one paddles the Racoon, large new homes are visible on the north side of the river, evidence of the march of development to the west of Iowa’s capital city in the last 30 years. The march will not likely stop soon. It raises land prices in the area and challenges the rural character of the watershed. Development adds a more

impermeable surface to the land, as roofs, roads, and parking lots are paved and the water from them cannot be absorbed by the land beneath. At the same time, the agricultural land that once supported water-absorbing prairie and 7-8 percent organic matter, now supports row-crops in soils reduced to 1-2 percent organic matter, decreasing the soils' water-holding capacity. The river's peak flows increase under both uses, and the power of flowing water challenges our attempts to keep the river within its current banks. What will be demanded of the river in the future?

Where the river makes a horseshoe bend, the land on the inside of the bend is often wooded, providing habitat for woodland creatures and a respite from agricultural crops. These areas and higher wooded areas on the south side of the river, together with the river itself, produce a variety of wildlife in this stretch. Families of Canada geese nest on the sand and rock bars in the river and graze on the grasses and crops nearby. Killdeer and spotted sandpipers use those same beaches, running and stopping to grab an insect meal. Bank, tree, rough-winged, and cliff swallows make sharp turns in their passes over the water, catching their insect dinners on the wing, while phoebes, eastern kingbirds, and great crested flycatchers wait on branches overhanging the river for their insect dinners to fly close to them. Kingfishers do the same, waiting patiently for a fish dinner direct from the river. Bald eagles, from young of the year through sub-adults to adults, watch the river from tree snags—often above riffles—their keen eyesight spotting fish to grab from the river. At least one eagle nest can be seen from the river in this stretch. Great blue herons use their stealth to wade in shallows to grab fish or frogs. Oriole nests hang from branches over the water, their owners betting on their engineering skills to hold their young safe, 20 to 30 feet above the river's flow. Song sparrows, gold finches, yellowthroats, cardinals, catbirds, red-winged blackbirds, mourning doves and others nest in young trees, shrubs, and grasses along the shore. Red-headed and red-bellied woodpeckers, and northern flickers make use of the abundant dead snags along the river to build nests and find meals. Chickadees, nuthatches, squirrels and raccoons make their homes in the hollows of the old growth trees found along the river. White-tailed deer emerge from the woodlands to drink from the river, cautious of passing paddlers. Beavers are seldom seen, but evidence of their activities is common in willow thickets and cottonwoods felled into the river. Red-tailed hawks and turkey vultures soar over the river, taking advantage of the thermal air currents that rise above the valley.

In the Raccoon's water, mussels cling to the rocky bottom found in some sections, free to filter the plankton from the waters flowing by. At least four live mussel species can be found in the Raccoon in this stretch: heal splitter, pimpleback, plain pocketbook, and even the rare pistolgrip. While old mussel shells can be found on the beaches of many Iowa rivers, the Raccoon still supports some sections where live mussels can be found. Their fate, however, depends on how we treat this river now and in the future, and how that affects its turbidity. Our past attempts to manage the river's flow, and the rapidly changing landscape that surrounds it, are all reflected in the river and the creatures it does—and does not—support.

Accessing the river to the west of Van Meter can be a challenge. Directional signs to the access within Van Meter are lacking, and the Pleasant St. surface is gravel and dirt that may be a challenge in wet weather. At its end, there is a locked gate that prevents access into the Two Rivers area. That hasn't stopped idiots with guns from shooting up the Water Trails sign, of course. Navigating boats over the fence is doable, but, even if the gate was opened, the "road" to the access—about ½ mile long—is not driveable for most of its length, being heavily rutted and gouged. We chose to walk in about ¼ mile to an alternate put-in and carefully pick our way down a steep slope to the riverside, putting in on flat rocks on the river's edge. No access is possible closer to the gate, as the bank is steeper and even more formidable. Improvement of this access and/or creating an access on the SE side of the R16 bridge (between the bridge and the USGS gauging station in Van Meter) is needed if families and novice paddlers are expected to use it—especially if return visits are desired.

The other two accesses on this stretch are good and reasonably well-maintained. The access ramp at Booneville (Access #26), like many Iowa accesses, accumulates sand and must be dug out regularly. The Walnut Woods access ramp faces similar challenges but is usually maintained. The distance to the access at Walnut Woods (12+ river miles) may be a bit long for novice or young paddlers. An additional access should be considered somewhere near the bend in the river at the "proposed road" to the south of 360th St. in West Des Moines (see UTM location below). That would make an access available approximately every 6 miles.

Major vegetation groups along the reach:

Where woodlands are present, silver maple, box elder, cottonwood and willow dominate areas closest to the water. Some ash and mulberry are often interspersed. On benches above, walnut, ash, hackberry, buckeye, and shagbark hickory can be found. On hills above the river, red, white and bur oaks can be seen, often large and old. They are being gradually replaced by more shade-tolerant species, including sugar maples and basswoods. Riverbank grape and poison ivy vines commonly overhang the banks. Where banks are grassed, it usually consists of brome grass with a few areas of Reed's canary grass.

Notable hazards and locations:

0422927 E - 4597661 N—High voltage transmission line crosses river
0425885 E - 4596855 N—High voltage transmission lines cross river
0436208 E - 4598615 N—Riffle in front of steel armored bank
0436703 E - 4598583 N—Riffle, may be bad in lower water

Notable landmarks and locations:

0420159 E - 4598886 N—SE end of public land (?) at Two Rivers Access
0424224 E - 4597660 N—Adult bald eagle
0424562 E - 4598259 N—2 juvenile bald eagles YOY
0424684 E - 4598222 N—Eagle nest on river right
0425730 E - 4597053 N—Booneville Access
0427487 E - 4596427 N—Adult bald eagle

0430870 E – 4596792 N—Proposed access point (steep bank) near “Proposed Road” in West Des Moines

0433415 E – 4597940 N—Pump house (sewer lift station?) along river

0434058 E – 4598492 N—Sub-adult bald eagle, 3.5 years old

0436328 E – 4598510 N—2 adult bald eagles

Interpretive sub-themes: Where mussels dare; Time and the river; Rivers and the rural/urban interface.

Recommended Experience Classification: Recreational

Stream Reach: Walnut Woods State Park to Principal Park (confluence with the Des Moines River)

UTM Beginning: 0437595 E – 4598783 N—Walnut Woods State Park ramp

UTM End: 0448858 E – 4603298 N—Access at Principal Park, under bike/pedestrian bridge

Approximate mileage: 12.2 miles

CFS average during this time period: 2350 cfs.

Description and interpretation of this section:

Like the country mouse that moves to the city, the Raccoon River achieves full urbanization in this stretch. It begins in Walnut Woods State Park, where the trees are big. The banks are rip-rapped largely with cement and bricks, especially in the outside bends of the river. That such waste is missing in some areas is a testimony to the river’s power. The river has roamed through this park several times in recent years, so the trees left are those well-rooted and accustomed to inundation. But the river continues to erode the banks, throwing many trees into the water. These pile up in the bends of rivers and on the pilings of bridges downstream. In an attempt to divert the current away from places like Brown’s Woods, rock diverters have been created, a larger version of the “wing dams” of the 20th Century. Even these piles are further armored with cement, but the river has reclaimed some of them anyway. Behind them, in the eddies, the water slows and particles drop out, creating new sand and silt beaches and, perhaps, new habitat for some species. West Des Moines’ Raccoon River Valley Park, too, is an overflow area, a creation of the river as it flows across the landscape. A small stream flowing out of the south end of the park creates an important quiet backwater nursery area for aquatic life, and a respite for many other species from the river’s current. A quiet paddle into the creek reveals the footprints and signs of many riverbottom critters.

However, after the river flows through these state, city, and county parks, it passes beneath the 63rd Street bridge. It is a steel girder structure and only the cement deck provides surfaces for cliff swallow nests to cling to. And, while the river still flows through Des Moines’ Water Works Park, it is increasingly tamed and subject to the restrictive structures demanded of it by city life. It has a more industrialized look. The banks are increasingly armored, sometimes carefully with constructed gabions and limestone rock, but most often with the city’s waste of cement, brick and tile. The

cement often has been carelessly discarded, with re-rod and steel cable still attached, hazards to paddlers and other boaters and anglers, and an eyesore to all. But the city remembers the destructive power of the Raccoon and the chaos it imposed in 1993, so it tries to restrict where the river is allowed to flow.

As it flows toward its confluence with the Des Moines River, the city uses increasingly restrictive methods to attempt to control the Raccoon and to protect the considerable investment in infrastructure. With high built-up banks, armored with rock and steel, and, finally, cement walls to contain its flow for its final $\frac{3}{4}$ mile after Gray's Lake—the Raccoon is directly and restricted. But the river reminds us that, though citified, it still has its wild streak. Battered steel walls, missing rip rap, failing banks, crumbling cement, piles of huge trees on bridges—all are reminders that the river is still fully capable of exerting its power whenever the rains on its watershed allow. It has moved into the city, but it still has its wild side!

The wooded riparian corridor is wide compared to the stretch of river farther west, aided by the presence of Walnut Woods State Park, West Des Moines' Raccoon River Valley Park, and Polk County's Browns Woods Park. Trees are more scattered and the resulting landscape more savannah-like in Des Moines Water Works Park. These parks, however, serve as a well-protected corridor for the river and provide habitat for river wildlife, in the midst of an urban area. White-tailed deer come to the banks to drink while rough-winged and cliff swallows and chimney swifts catch insects in the air above them. Great blue herons, killdeer, and spotted sandpipers probe the beaches and shallows for fish and insect prey. While old mussel shells can be found on some of those beaches, live mussels in this section are few. Canada geese graze the meadows of Water Works Park and loaf on the Raccoon's beaches. Mallard hens, successfully bringing off late nests, lead ducklings to the comparative safety of the river. A bald-faced hornets' nest, basketball sized, hangs hidden in the leafy branches over the river. Song sparrows, house wrens, catbirds, and indigo buntings all sing their praises of the habitat along the river. Cedar waxwings hawk for insects from the branches of a silver maple snag that has fallen into the water. Tracks in the mud and fresh-chewed sticks of willow and cottonwood serve as evidence of the presence of turtles, raccoons, and beavers. Holes in standing tree snags and distant calls reveal the presence of downy, red-headed, and red-bellied woodpeckers and flickers. A bald eagle, perched on a dead cottonwood near the 63rd Street Bridge identifies the Raccoon as fit for fishing, despite its urban character. A fisherman, still in hospital scrubs, confirms it, fishing the river beside Grays Lake over his lunch hour. Red-tailed hawks scream, declaring that it is good for rabbits, too. A barred owl can be seen as close to downtown as the edge of Grays Lake Downtown, beside the busy parking lot of Principal Park, a woodchuck has taken up residence in the unmowed bank. While not as abundant, perhaps, as they are farther upstream, these wildlife species share the river with us and make a paddle on the Raccoon more enjoyable and eventful. Like the river, they have adapted their wildness to the city.

The access at Walnut Woods is very adequate for paddlers. Due to the load of silt the river carries, it must be regularly cleared, however. So, too, the ramp at Water Works

Park, just above the first rock dam, must be regularly cleared. Paddlers there should be especially wary of the re-rod sticking out of cement rip-rap near that ramp. Another ramp, about 2.5 miles upriver from that one, is proposed for western Water Works. It is possible to put a ramp there, as a road is very near. The bank is vertical, however, so grading would have to be done and a small parking lot created. Trees do tend to accumulate in that bank, so careful planning and design must be done. The access at Principal Park below the pedestrian/bike bridge is problematic. It is well-marked for paddlers and the trail leading down to it is in good condition, however, getting out of a watercraft at that point takes considerable effort. The broken and thrown concrete present challenges to those in kayaks and, in lower water, even canoes. More careful design and strong construction methods must be employed to make this access safe and welcoming. In any case, a portage of a couple of hundred yards is necessary to the parking lot at Principal Park and the Ft. Des Moines cabin, just south of MLKing.

There are two potential portages in this stretch. The rock dam at Water Works Park must be portaged around at water levels lower than 2350 cfs. Experienced paddlers can easily and safely run it, however, at that level and above. The lower portage trail around the dam, however, needs to be better designated than it currently is. The second dam, labeled a "lowhead dam" is also runnable at 2350 cfs by experienced paddlers. The portage around it is well-marked on the river. However, the ramps at both ends are badly silted-in and the portage trail is lacking. A single mower-width cut through the grass would be sufficient to mark this trail. Through-paddlers should never, of course, attempt to run the dam below the confluence of the Raccoon with the Des Moines River. When the exit is rebuilt at Principal Park, signs indicating the portage route across the pedestrian bridge to the put-in below the dam should be indicated for such paddlers.

Major vegetation groups along the reach:

In the lowlands, bottomland hardwoods dominate: silver maples, cottonwoods, and box elders grow on the river's edge, while willows dominate on the beaches. A few river birches are also found in this stretch, especially near Grays Lake Park. Walnuts are well-established on benches slightly higher above the water, mixed with ash, honey locust, and some hackberry. Basswoods and red and white oaks grow on hills above the river, especially in Brown's Woods. That park also has some honeysuckle shrubs and oriental bittersweet vines along the river, both invasive species that they should deal with very soon, before they spread throughout this and other parks. Curtains of grapevines and wild cucumber hang down along many banks of this river, draping over branches of bottomland hardwoods and elderberry. After the 63rd Street bridge, more mowed areas are common, particularly in parts of Water Works and Grays Lake parks. Still, areas of unmowed brome, barnyard grass, and sedges persist, especially along the Fleur Drive lowhead dam portage. The area above the cement walls of Principal Park is a mix of unmowed grasses and forbs that provide some habitat. They could be replanted, however, with a mix of pollinator-friendly forbs and be both attractive and better habitat.

Notable hazards and locations:

0439152 E - 4599202 N—High voltage transmission lines across river

0445899 E - 4603236 N—High voltage transmission lines across river ~1/4 mile up river from Fleur Dr.

0447458 E - 4602555 N—High voltage transmission lines across river

Notable landmarks and locations:

0440475 E - 4600790 N—Mouth of stream coming out of RacRivVal Park, quiet backwater

0441157 E - 4601417 N—Adult bald eagle on cottonwood snag

0442663 E - 4601568 N—Potential location for access, WW Park

0443687 E - 4601983 N—Mouth of Walnut Creek entering Raccoon River

0445288 E - 4601994 N—Water Works Park Access ramp

0446496 E - 4603295 N—Upstream portage trail above 2nd rock dam, beside Fleur Dr.

0446400 E - 4603223 N—Downstream end of portage trail around Fleur Dr. rock dam

Interpretive sub-themes: Rural river moves to the city.

Recommended Experience Classification: Recreational

Photos and descriptions: Two folders, one for each river segment, totaling 114 photos.

Recommendation on how/where interpretive information could be shared with the public:

Maps and interpretive information regarding paddling the Raccoon River should be on the websites of County Conservation Boards, DNR, Chambers of Commerce, Dept. of Natural Resources, canoe liveries and other paddling related businesses in Dallas and Polk counties. Brochures regarding the water trails should be in offices and kiosks of those, as well. Consideration should be given to placing interpretive signs at accesses and in parks along the way in locations that are not too remote, as vandalism can be a problem. Cell phone reception appears to be good throughout the length of the river in these counties so consideration should be given to using that technology to provide interpretative info to paddlers in cell-compatible formats and include links to maps.