

# **Weathering Amber Chalcedony (WAC) Fluted Bifaces from Virginia**

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## **Introduction**

This report presents information concerning 49 fluted bifaces, figures 1 through 6, found in Virginia of weathering amber chalcedony (WAC) and WAC-like chalcedony. In Virginia this distinctive stone material is known to occur only as surface outcrops and to occur in only one area, along the North Anna River in extreme northwestern Hanover County and in the adjacent portion of southeastern Spotsylvania County.

Within this area, there is only one known Clovis base camp and quarry- manufacturing locality, the Little Rocky Creek site complex. This site complex was discovered by Mr. James P. McAvoy of NRS in 2004. The base camp portion of the complex is situated east of the chalcedony outcrops, which are adjacent to Little Rocky Creek. The site complex is in the Virginia Piedmont in Hanover County along a high ridge just south of the North Anna River, which is part of the York River Drainage. The approximate location of the WAC quarry is shown in Figure-7 by the black triangle. The site was discovered after a search of 10 years in which Mr. McAvoy performed numerous field surveys both north and south of the James River and inspected many local collections of artifacts to help narrow the location of the site.

It is important to note that no fluted points had been recorded from either the site or the immediate site area before Mr. McAvoy's discovery. Based upon Virginia fluted point survey data, this area of Hanover County would have been described as one where there was an absence of Clovis bifaces. Now, over 200 Clovis bifaces, most manufacturing failures, have been found there by Mr. McAvoy. Also, it is obvious from the points presented in this report from locations throughout Virginia that not all these points are Clovis, as there are several that appear to be of the Redstone type, which is more common throughout the Carolinas to the south. Though not discussed in this report, there are also several Kirk and Palmer points known from eastern Virginia of the WAC material, which was likely quarried in the general vicinity of Little Rocky Creek.

## **Characteristics of Weathering Amber Chalcedony**

The chalcedony occurs at the Little Rocky Creek locality as disassociated fragments in linear surface outcrops, which as of 2012 had been traced by Mr. McAvoy for over 7,000 feet, primarily along a single ridge. In straight-line distance, the two largest outcrops of chalcedony currently known are approximately 1,500 feet to the southwest and 2,500 feet to the northwest of the Clovis base camp. The chalcedony fragments vary in maximum dimension from a few inches to more than two feet, and isolated fragments weighing more than 40 pounds have been observed along the ridgeline. The primary artifact clusters at the base camp have produced only a few untested nodules or platelets of the chalcedony, and all have been small.

Based upon NRS observations, this Virginia chalcedony is unique in structure. The laboratory conducting the petrographic analysis, Spectrum Petrographics, Inc., describes a typical sample of weathering amber chalcedony as an altered, likely claystone (protolith) breccia. The sample studied by the lab was 67% chalcedony, 15% opal, 10% kaolinite, 3% sericite, 2% quartz (crystal),

2%, iron hydroxide, 1% tremolite, and 1% apatite. The greater mass of this material is described as multigenerational structural cement, and it is dominated by chalcedony with lesser opal, kaolinite, and iron hydroxide. Colors of material found at the quarry and at the associated Clovis base camp are red, amber, pink, orange, yellow, white, gray, brown, and clear, but all of this material has similar irregular, blocky, and linear inclusions of opalized kaolin. Cavities in the matrix are filled with quartz crystals, and structural weld seams are chalcedony. The most common colors are the amber, orange, yellow, and reddish brown, while the clear, which weathers to a light bluish gray, is rare. There is a small amount of material at the quarry defined as jasper, but it retains the unique inclusions observed in all this stone, which clearly distinguish it from other jaspers found in Virginia.

In the past, various individuals have referred to this material by different names including snow flake chalcedony and Nottoway River chert. The term Nottoway River chert was based upon two things; first, the presence of many artifacts of WAC on Nottoway River sites south of the James River, and second, the misidentification as WAC of a similar colored yellow-brown fibrous chert, quite different in structure from WAC, from a chert quarry in Brunswick County, Virginia. Still, true weathering amber chalcedony all seems to have originated from the outcrops near Little Rocky Creek and along the North Anna River to the north above the Nottoway River Drainage.

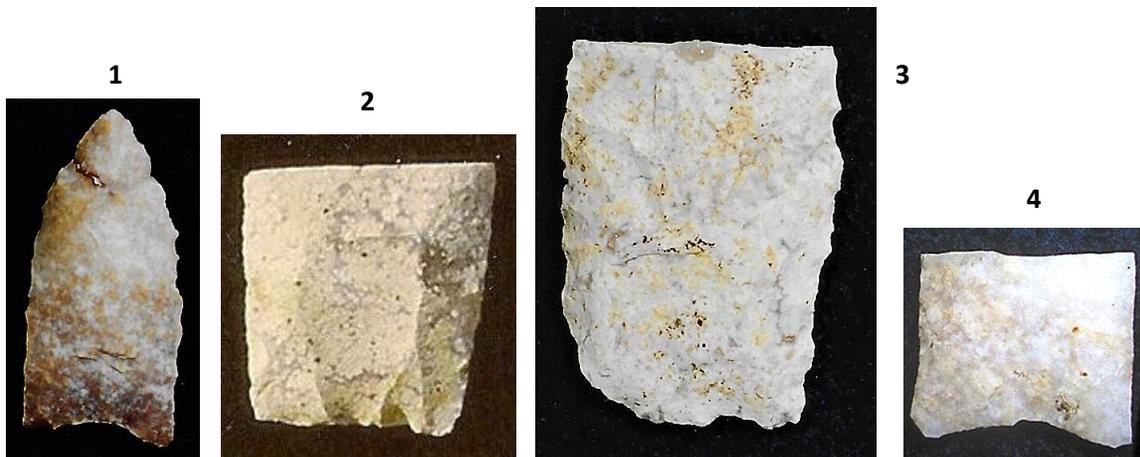
### **Cluster Areas of Weathering Amber Chalcedony Fluted Bifaces from Virginia in this Report**

There are three recognized site cluster areas, and two recognized general cluster areas, in Virginia of weathering amber chalcedony (WAC) fluted bifaces and tools. These areas are shown by the blue-lined ovals in Figure-7 and are described below:

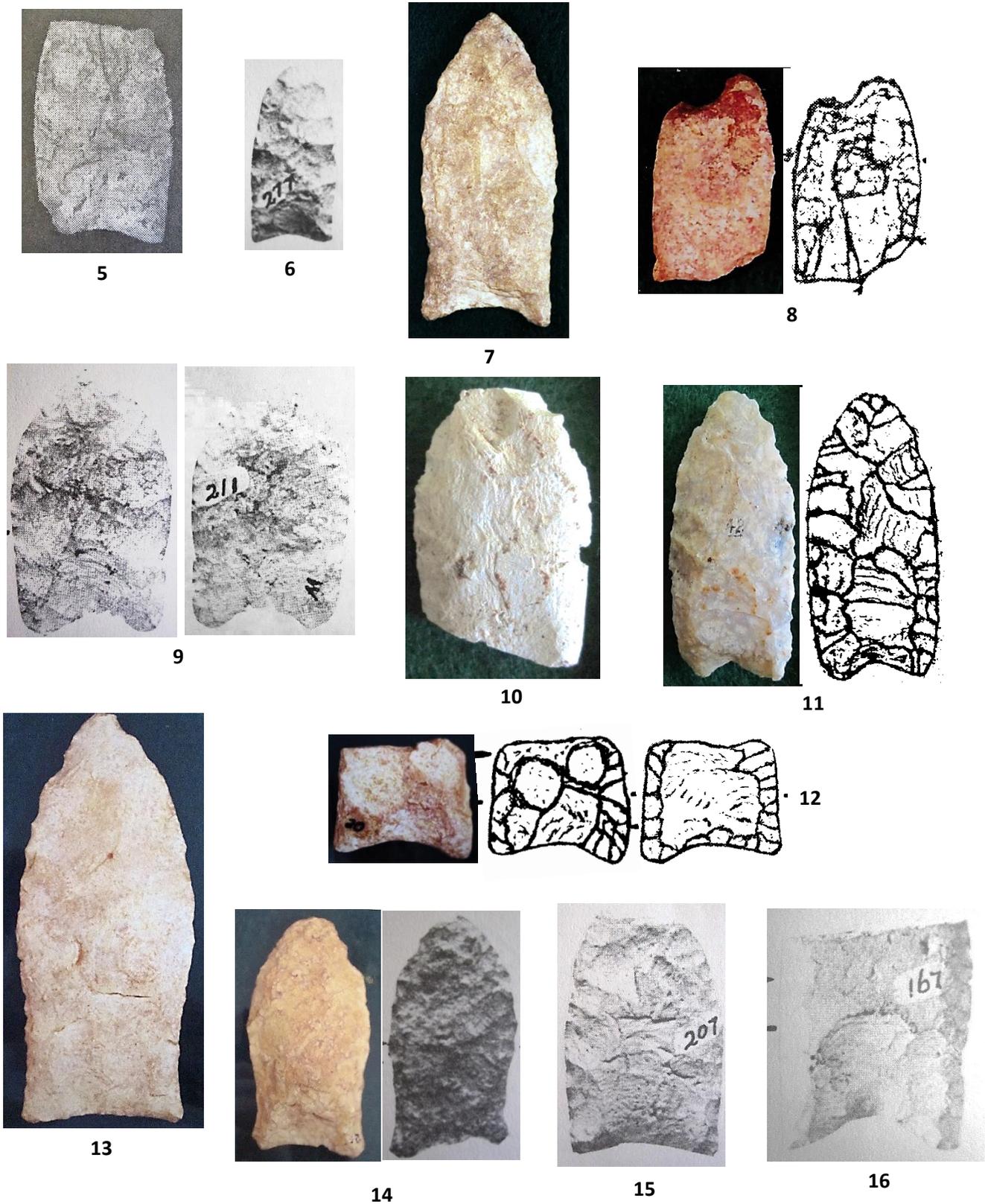
1. Site Cluster Area 1: Little Rocky Creek Clovis base camp in extreme northwestern Hanover County at the WAC outcrops as described above; these bifaces are numbered 1 through 4 and shown in Figure-1.
2. Site Cluster Area 2: about three miles east of Dinwiddie Court House, Virginia on the Williamson site in Dinwiddie County; bifaces 5 through 16, shown in Figure-2.
3. Site Cluster Area 3: just east of Emporia Virginia along the Meherrin River on the Greensville County Clovis site. At least 76 WAC artifacts are known from this single site; bifaces 38 and 39, shown in Figure-5.
4. General Cluster Area 1: the area encompassed within a 20-mile radius circle surrounding the Williamson site and extending into Dinwiddie County, Sussex County, Prince George County, and Chesterfield County; bifaces 17 through 27, shown in Figure-3.
5. General Cluster Area 2: along the James River from the City Point area of Prince George County to the Mulberry Island area of the City of Newport News, a distance of approximately 40 miles. The highest concentration is in Surry and Prince George Counties on the south side of the James River over a distance of only 9 miles just west of the confluence of the Chickahominy River with the James River in James City County; bifaces 28 through 37, shown in Figure-4.

In addition to the cluster areas, there are 10 known non-cluster-area finds of weathering amber chalcedony fluted bifaces. These finds are shown in Figure-6, as numbers 40 through 49, and in Figure-7 by the find locations outside the blue-lined ovals.

The 49 Weathering Amber Chalcedony (WAC) Fluted Bifaces Presented in this Report



**Figure 1.** Site Cluster Area 1, Little Rocky Creek Clovis site (LRC) weathering amber chalcedony (WAC) quarry. Top photograph, sample of 22 of the approximately 200 broken-in-manufacture Clovis bifaces known from the Little Rocky Creek site, 19 of those shown are of WAC likely quarried there (57% natural size). Bottom, numbered 1-4, two completed WAC Clovis points (1 and 4) and two broken-in-manufacture nearly completed Clovis points (2 and 3) from LRC (shown natural size).



**Figure 2.** Site Cluster Area 2, WAC Clovis points from the Williamson Clovis chert quarry (Little Cattail Creek Chert) and residential base camp, Dinwiddie County, Virginia (shown natural size).



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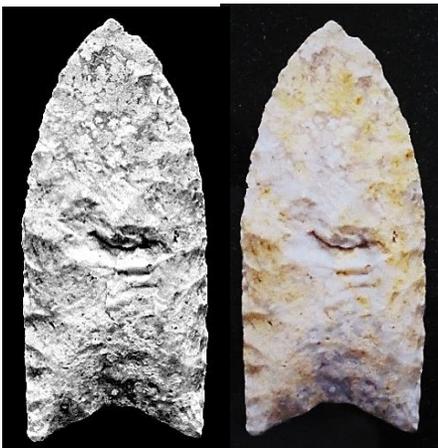
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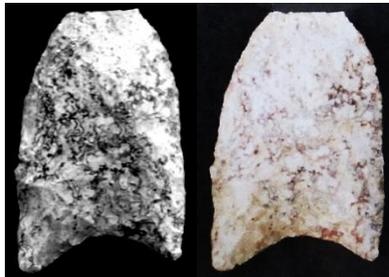
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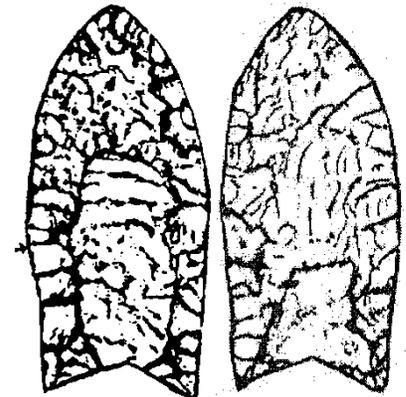
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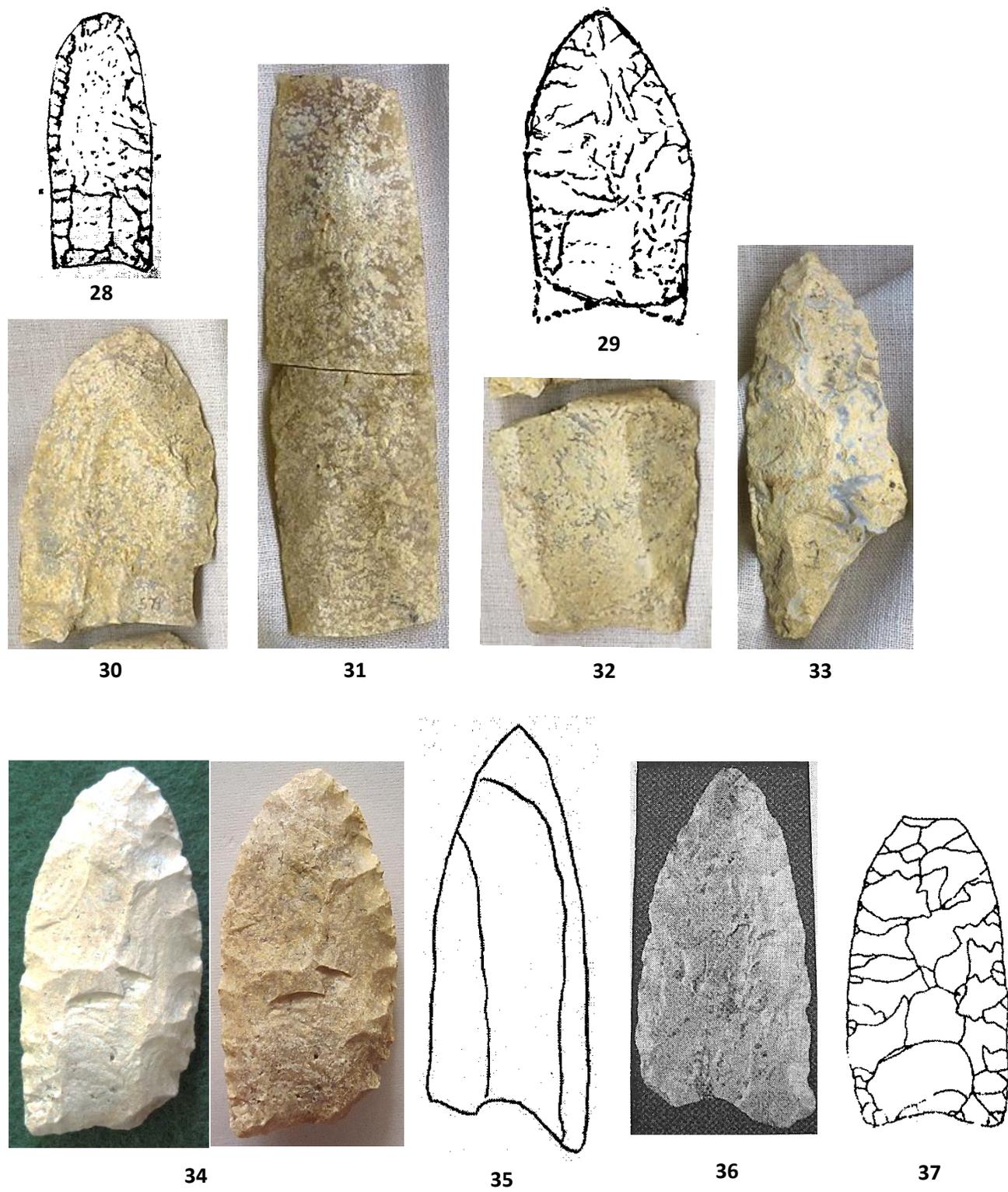


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**Figure 3.** General Cluster Area 1, WAC Clovis bifaces from small sites and isolated finds in Dinwiddie, Sussex, and Chesterfield Counties, Virginia, some found near the Williamson Site (shown natural size).



**Figure 4.** General Cluster Area 2, WAC Clovis bifaces from small sites and Isolated finds near the James River in Prince George, Surry, and James City Counties, Virginia, and in the City of Newport News (shown natural size).

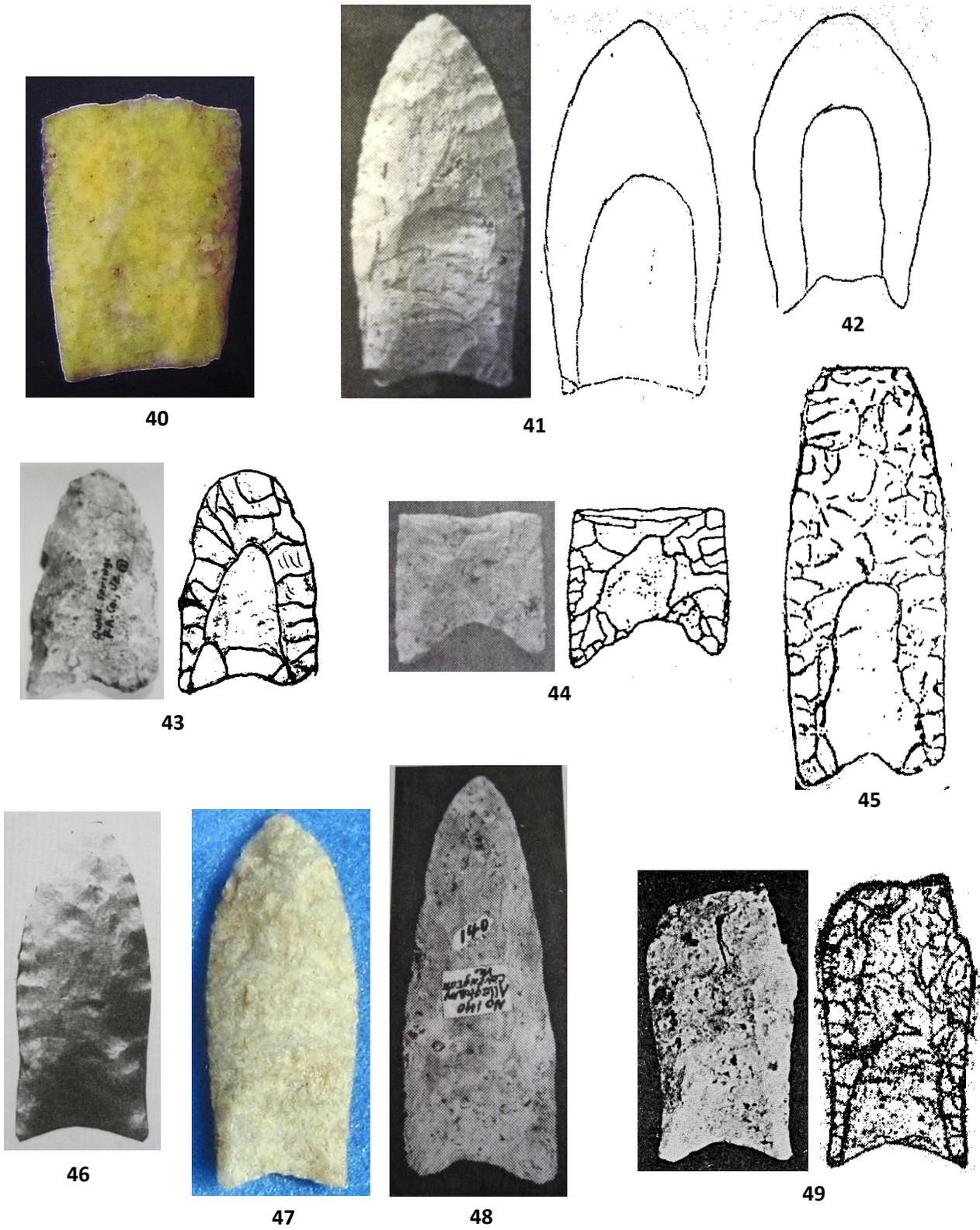


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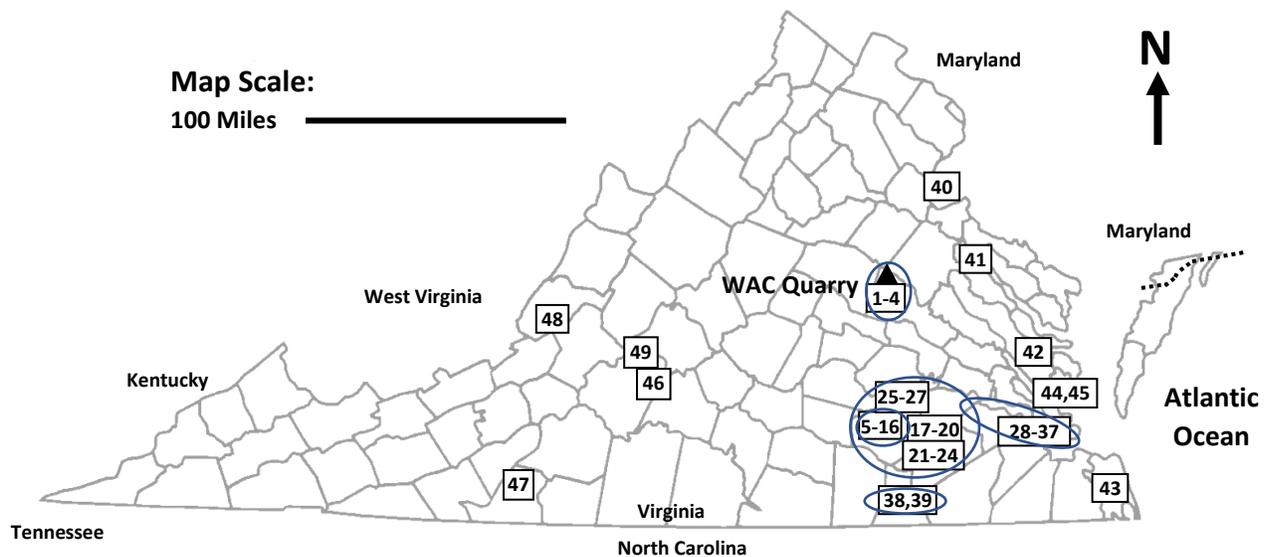


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**Figure 5.** Site Cluster Area 3, selection of WAC Clovis bifaces and WAC tools from the Greensville County, Virginia Clovis site on the Meherrin River near Emporia, Virginia. Top photograph, Clovis point, biface fragments, side scrapers, ends scrapers, edge-worked flakes, and a graver of WAC from the Greensville County, Virginia Clovis site (shown 60% natural size). Bottom photographs, examples from above of a WAC Clovis point (38) and a Clovis biface fragment (shown natural size).



**Figure 6.** Non-Cluster Finds, WAC Clovis points from small sites and isolated finds from areas in Virginia (shown natural size).



**Figure 7.** The find locations of the weathering amber chalcedony (WAC) fluted bifaces presented in this report; the five blue-lined ovals represent three site clusters and two general area clusters of WAC fluted bifaces.

### **Information Concerning the 49 Weathering Amber Chalcedony (WAC) and WAC-Like Fluted Bifaces Presented by Number in this Report**

- 1,** No Virginia Fluted Point Survey (VFPS) number, Little Rocky Creek Clovis quarry and base-camp, Hanover County, North Anna River (York River Drainage), Clovis point, length (L) 44 mm, J.P. McAvoy collection, NRS photograph.
- 2,** No VFPS number, Little Rocky Creek Clovis quarry and base-camp, Hanover County, North Anna River (York River Drainage), late stage Clovis biface, L 37 mm, broken, J.P. McAvoy collection, NRS photograph.
- 3,** No VFPS number, Little Rocky Creek Clovis quarry and base-camp, Hanover County, North Anna River (York River Drainage), late stage Clovis biface, L 52 mm, broken, J.P. McAvoy collection, NRS photograph.
- 4,** No VFPS number, Little Rocky Creek Clovis quarry and base-camp, Hanover County, North Anna River (York River Drainage), Clovis point, L 24 mm, broken, J.P. McAvoy collection, NRS photograph.
- 5,** VFPS #409, Williamson Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of weathered yellow WAC, L 39 mm, broken, old Williamson Family collection now at College of W&M, Chesopiean Journal photograph.
- 6,** VFPS #277, Williamson Clovis site, Ampy Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of translucent amber-pink WAC weathered gray-white, L 32 mm, old B.C. McCary Family collection, Chesopiean Journal photograph.

- 7**, VFPS #236, Williamson Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of weathered cream-brown WAC-like translucent chalcedony, L 57 mm, old Williamson Family collection now at College of W&M, NRS photograph.
- 8**, VFPS #453, Williamson Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of WAC burned deep red, L 35 mm, broken, old Williamson Family collection now at College of W&M, NRS photograph, VFP Survey drawing.
- 9**, VFPS #211, Williamson Clovis site, Ampy Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of weathered yellow and gray WAC, L 47 mm, old B.C. McCary Family collection, Chesopiean Journal photographs.
- 10**, VFPS #920, Williamson Clovis site, Ampy Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of deeply weathered yellow-amber WAC, L 49 mm, broken base and tip, NRS collection, NRS photograph.
- 11**, VFPS #437, Williamson Clovis site, Ampy Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of light amber WAC, L 51 mm, damaged base, NRS collection, NRS photograph, VFP Survey drawing.
- 12**, VFPS #490, Williamson Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of burned pink-red WAC with numerous fire pocks and fractures, L 20 mm, broken, old Williamson Family collection now at College of W&M, NRS photograph, Chesopiean Journal drawings.
- 13**, VFPS #155, Williamson Clovis site, found on the farm just to the east of the Williamson Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of WAC-like reddish brown translucent chalcedony weathered gray-white, L 73 mm, old Williamson Family collection now at College of W&M, NRS photograph.
- 14**, VFPS #200, Williamson Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of heavily weathered yellow-amber WAC, L 42 mm, old Williamson Family collection now at College of W&M, NRS photograph, and Chesopiean Journal photograph (black and white) of different sides of the point.
- 15**, VFPS #207, Williamson Clovis site, Ampy Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of WAC weathered yellow-gray, L 42 mm, tip broken, old B.C. McCary Family collection, Chesopiean Journal photograph.
- 16**, VFPS #167, Williamson Clovis site, Ampy Family farm, Dinwiddie County, Nottoway River Drainage, Clovis point of amber-yellow (WAC) chalcedony weathered gray, L 40 mm, broken, old B.C. McCary Family collection, Chesopiean Journal photograph.
- 17**, VFPS #729, Conover Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of amber-orange-yellow WAC, L 55 mm, H. Conover collection, NRS photograph.
- 18**, VFPS #700, Conover Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of WAC burned pink, L 62 mm, H. Conover collection, NRS photograph.
- 19**, VFPS #686, Conover Clovis site, Dinwiddie County, Nottoway River Drainage, Clovis point of WAC weathered yellow, L 21 mm, broken, H. Conover collection, NRS photograph.
- 20**, VFPS #626, isolated find approximately one mile north of Conover Site, Dinwiddie County, Nottoway River Drainage, Clovis point of amber WAC weathered yellow and blue, L 51 mm, State of Virginia (VDHR) collection, VDHR photograph from their web site.

- 21**, No VFPS number, small Clovis site near Cactus Hill but on the north side of the Nottoway River, Sussex County, Nottoway River Drainage, Clovis late stage biface of weathered yellow WAC, approximate L 45 mm, broken, Robert Joyner collection, Robert Joyner photograph.
- 22**, No VFPS number, small multicomponent site near Cactus Hill but on the north side of the Nottoway River, Sussex County, Nottoway River Drainage, probably a Redstone fluted point but possibly a recycled Clovis point tip, cream-amber-red and brown weathered WAC, L 48 mm, NRS collection, NRS photograph.
- 23**, VFPS #776, multicomponent site, Sussex County, Nottoway River Drainage, Clovis point, recorded in the VFP Survey as “chalcedony” and reported to NRS as WAC by the Virginia Department of Historic Resources (VDHR) staff, L 62 mm, damaged base, J. Lilley collection, VFP Survey drawing.
- 24**, No VFPS number (artifact # 2076 from the Ogle Collection donated to the VDHR), the multicomponent W.T. Fannin site, Sussex County, Nottoway River Drainage, Clovis or Redstone fluted point of yellowish WAC, approximate L 60 mm, some damage to the basal end, VDHR collection, NRS photograph.
- 25**, No VFPS number, unknown site location somewhere in the Dinwiddie-Sussex-Prince George-Chesterfield County area, Clovis point, approximate length 55mm, old Stevens Family collection, NRS color and NRS black-and-white photographs of the same side of the point.
- 26**, VFPS #636, small Clovis site at the Matoaca, Virginia water treatment plant location, Chesterfield County, Appomattox River (James River Drainage), Clovis point, tip broken, L 35 mm, J. Livesay Family collection, NRS color and NRS black-and-white photographs of the same side of the point.
- 27**, VFPS #231, isolated find several miles northeast of the Williamson site, Dinwiddie County, Nottoway River Drainage, Clovis point of weathered yellowish WAC, L 52 mm, old B.C. McCary Family collection, VFP Survey drawings of both sides of the point.
- 28**, VFPS #790, multicomponent site, James City County, Chickahominy River near the junction with James River, James River Drainage, Clovis point reported by B.C. McCary to NRS as “very pretty, partly weathered chalcedony and very WAC-like,” L 43 mm, W. Eggleston collection, VFP Survey drawing.
- 29**, VFPS #393, multicomponent site on Mulberry Island at Fort Eustis, City of Newport News, James River Drainage, Clovis point “gray and orange chert” WAC-like, L 50 mm, A. Dippre collection, VFP Survey drawing.
- 30**, No VFPS number, Claremont Clovis site, Surry County, James River Drainage, Clovis biface tip of weathered yellow-amber WAC, approximate length L 60 mm, broken in manufacture, collections of the Virginia Foundation for Archaeological Research, photograph by L.B. Gregory.
- 31**, VFPS #902, Claremont Clovis site, Surry County, James River Drainage, Clovis point of lightly weathered high-grade yellow-amber WAC, L 97 mm, broken base and broken tip, collections of the Virginia Foundation for Archaeological Research, photograph by L.B. Gregory.
- 32**, VFPS #870, Claremont Clovis site, Surry County, James River Drainage, Clovis biface base of weathered yellow-amber WAC, L 43 mm, broken in manufacture, collections of the Virginia Foundation for Archaeological Research, photograph by L.B. Gregory.

- 33**, VFPS #871, Claremont Clovis site, Surry County, James River Drainage, Clovis biface of yellow-amber-blue weathered WAC, L 64 mm, broken in manufacture, collections of the Virginia Foundation for Archaeological Research, photograph by L.B. Gregory.
- 34**, VFPS #440, isolated find two miles south of Disputanta, Prince George County, Blackwater River Drainage, Clovis point of amber-yellow WAC, heavily weathered, L 60 mm, NRS collection, left NRS photograph is natural color, right NRS photograph is of same side after the point was soaked in water for one hour and allowed to air dry for ten minutes. Water is absorbed into the weathered surface patina allowing light to pass through the stone more easily thus revealing more details of the structure. This is a common trait noted with heavily weathered WAC artifacts.
- 35**, VFPS #158, found on the Copps property near the Episcopal Church at the junction of the Appomattox River and James River, Prince George County (City of Hopewell), James River Drainage, Redstone fluted point of a grainy textured WAC originally described by McCary as quartzite, L 72 mm, University of Pennsylvania Museum collection, VFP Survey drawing.
- 36**, VFPS #589, Isolated find on the beach at Flowerdew Hundred near Windmill Point, Prince George County, James River Drainage, Redstone or Clovis point of “tannish-pink chert with a small amount of white,” WAC-like chalcedony, heavily water worn, L 62 mm, some damage to base, College of W&M collections, VFP Survey photograph.
- 37**, VFPS #889, small Clovis site at Flowerdew Hundred near the plantation, Prince George County, James River Drainage, Clovis point of “Nottoway River chalcedony” (WAC), L 52 mm, tip damage, Flowerdew Hundred collection, VFP Survey drawing.
- 38**, VFPS #725, Greenville County Clovis site, Greenville County near Emporia, Meherrin River Drainage, Clovis point of yellow-gray-white WAC weathered yellow, L 54 mm, NRS collection, NRS photographs of both sides of the point.
- 39**, No VFPS number, Greenville County Clovis site, Greenville County near Emporia, Meherrin River Drainage, Clovis biface tip of amber-orange and red WAC, approximate length 45 mm, NRS collection, NRS photograph.
- 40**, No VFPS number, a surface find by a CRM firm on Government Island in Stafford County; this photograph of a large Clovis point basal end, obviously of a very high-grade yellowish WAC, was presented on a public information display sign at the Stafford County Government-Island Park, and it was photographed by NRS from the sign, Potomac River Drainage, the point is large but the exact size is unknown, it is possibly in a Stafford County-owned collection.
- 41**, VFPS #115, Caroline County 12 miles southeast of Fredericksburg, surface find on a small Clovis site just south of the Rappahannock River, Clovis point of amber WAC weathered yellow, L 64 mm, old C.W. Beard Family collection, VFP Survey drawing, VFP Survey photograph (W.J. Hranicky report).
- 42**, VFPS #123, King and Queen County, Glebe Farm (found 1934), Mattiponi River Drainage, Clovis-like point of “red, brown and yellow agate or chert” (WAC), L 50 mm, present location unknown, VFP Survey drawing.
- 43**, VFPS #364, Quail Springs Clovis site, Princess Anne County (now the City of Virginia Beach), drainage divide between Eastern Branch Elizabeth River (Chesapeake Bay Drainage) and the North Landing River, Clovis point reworked to discard stage of weathered yellow-white

WAC, L 36 mm, disappeared from the NRS collection in the 1960s, present location unknown, NRS photograph, NRS drawing.

**44**, VFPS #978, Gloucester County, North River near the head of Mobjack Bay (Chesapeake Bay Drainage), Clovis or Redstone point of “Nottoway River chert with a mottled pale orange to light brown to medium brown patina” (WAC), L 25 mm, broken, old Mark Small Family collection, VFP Survey drawing, VFP Survey photograph (W.J. Hranicky report).

**45**, VFPS #673, Gloucester County, beach-find north side of York River near the old Rosewell Plantation ruins, Clovis point of yellow-brown chalcedony (WAC), L 69 mm, tip broken, Eddie Bottoms Family collection, VFP Survey drawing.

**46**, VFPS #831, Bedford County, southeast slope of Terrapin Mountain about 15 miles north of Bedford, near Reed Creek, James River Drainage, Clovis point of mottled cream translucent chalcedony with white inclusions (WAC), L 54 mm, Ricky Key collection, VFP Survey photographs by W. Childress.

**47**, No VFPS number, multicomponent site, Patrick County, Smith River Drainage, Clovis point of amber-orange WAC, approximate length L 65 mm, private collection, point observed by NRS in the mid 1980s glued to a display board, NRS photograph.

**48**, VFPS #140, Alleghany County, Covington, Jackson River (James River Drainage), Clovis-like point of yellow-gray-white weathered WAC, L 69 mm, old B.C. McCary Family collection, VFP Survey photograph (W.J. Hranicky report).

**49**, VFPS #264, Rockbridge County, one-half mile up James River from Natural Bridge Station, Clovis point of translucent pale pink chalcedony deeply weathered gray-white with irregular translucent areas (WAC), L 49 mm, tip broken, old R.P. Carroll collection, VFP Survey drawing, VFP Survey black-and-white photograph.