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# Rappahannock News

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A FOOTHILLS FORUM • RAPPAHANNOCK NEWS SPECIAL REPORT



FISHING THE HUGHES RIVER IN FT. VALLEY • BY DENNIS BRACK

## Protecting Paradise

### Rivers, streams and soil: Signs of progress, but work remains

BY SARA SCHONHARDT For Foothills Forum

It was a report card few residents were anticipating. Ahead of its release last October, a crowd of roughly 70 buzzed around Pen Druid Brewery drinking beer and mingling, united by their interest in the state of Rappahannock County's streams and rivers.

Then Adam Lynch from Friends of the Rappahannock (FOR), the environmental nonprofit based in Fredericksburg that had done the grading, stood and presented the report's findings.

Among the highlights: The Jordan River received an A for having large amounts of land along the watershed in conservation, and the Thornton received top marks for its annual river clean-up.

The bad news: A portion of the Rush River that runs through the Rappahannock County Park had earned a failing grade for recreational use for having unsafe levels of E. coli bacteria, which can lead to illness and infection in humans.

See **PARADISE**, Page 16

## Is Sperryville 'subdivision' inevitable?

Planners consider rezoning to 2-acre minimum; public hearings, BOS vote would also be required

BY PATTY HARDEE  
Special to the Rappahannock News

Does a rezoning inevitably mean development? That was the question swirling around last Wednesday night's meeting of the Rappahannock County Planning Commission.

Sperryville resident Tom Taylor and his wife Cheryl, doing business under the name Mt. Airy Field LLC, have applied to rezone their 35-acre tract along Woodward Road from Rural Residential 5 (RR-5 restricts lot size to a five-acre minimum) to R-2, which downsizes lots to two acres minimum.

The possibility of his request for rezoning came up earlier in the year during Planning Commission discussions about the revised — but yet to be approved — comprehensive plan that introduced boundary maps of Rappahannock's major villages. Taylor's property adjacent to Sperryville has access to the Rappahannock County Water and Sewer Authority sewer lines.

See **SPERRYVILLE**, Page 14



THE PREMIER BROKERAGE FIRM

REPRESENTING THE CAPITAL REGION AND THE VIRGINIA COUNTRYSIDE

Massies Corner hay bales change with the times → PAGE 9

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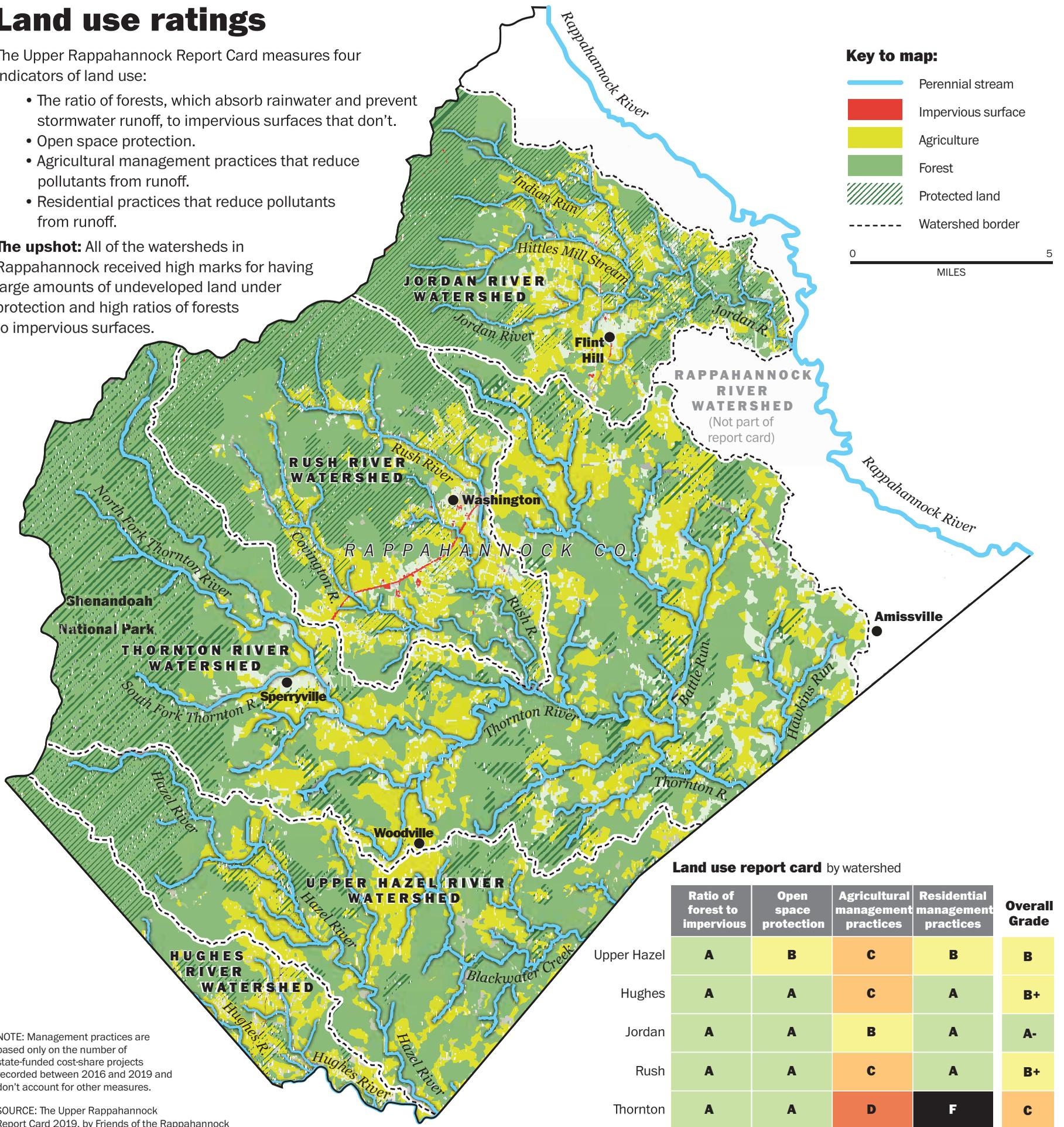
# Protecting Paradise

## Land use ratings

The Upper Rappahannock Report Card measures four indicators of land use:

- The ratio of forests, which absorb rainwater and prevent stormwater runoff, to impervious surfaces that don't.
- Open space protection.
- Agricultural management practices that reduce pollutants from runoff.
- Residential practices that reduce pollutants from runoff.

**The upshot:** All of the watersheds in Rappahannock received high marks for having large amounts of undeveloped land under protection and high ratios of forests to impervious surfaces.



NOTE: Management practices are based only on the number of state-funded cost-share projects recorded between 2016 and 2019 and don't account for other measures.

SOURCE: The Upper Rappahannock Report Card 2019, by Friends of the Rappahannock

## PARADISE

From Page 1

Moreover, the Virginia Department of Environmental Quality (DEQ), which collects and tests water samples for bacteria and other pollutants, had listed that portion of the Rush River as “impaired” since 2002.

“We were totally shocked because a lot of us had never heard anything about this,” said Ruth Welch, a board member of the county’s Recreation Facilities Authority, which manages the Rappahannock County Park. If the river had earned a failing grade for recreation, she thought, people shouldn’t be playing and wading in it.

Environmental agencies, experts,

nonprofits and volunteers have been largely successful in keeping Rappahannock’s streams and soils clean and healthy, which preserves the county’s rural and agricultural character. But sustained efforts will be needed to ensure its treasured natural resources continue to benefit the local community as well as the millions of people who live downriver.

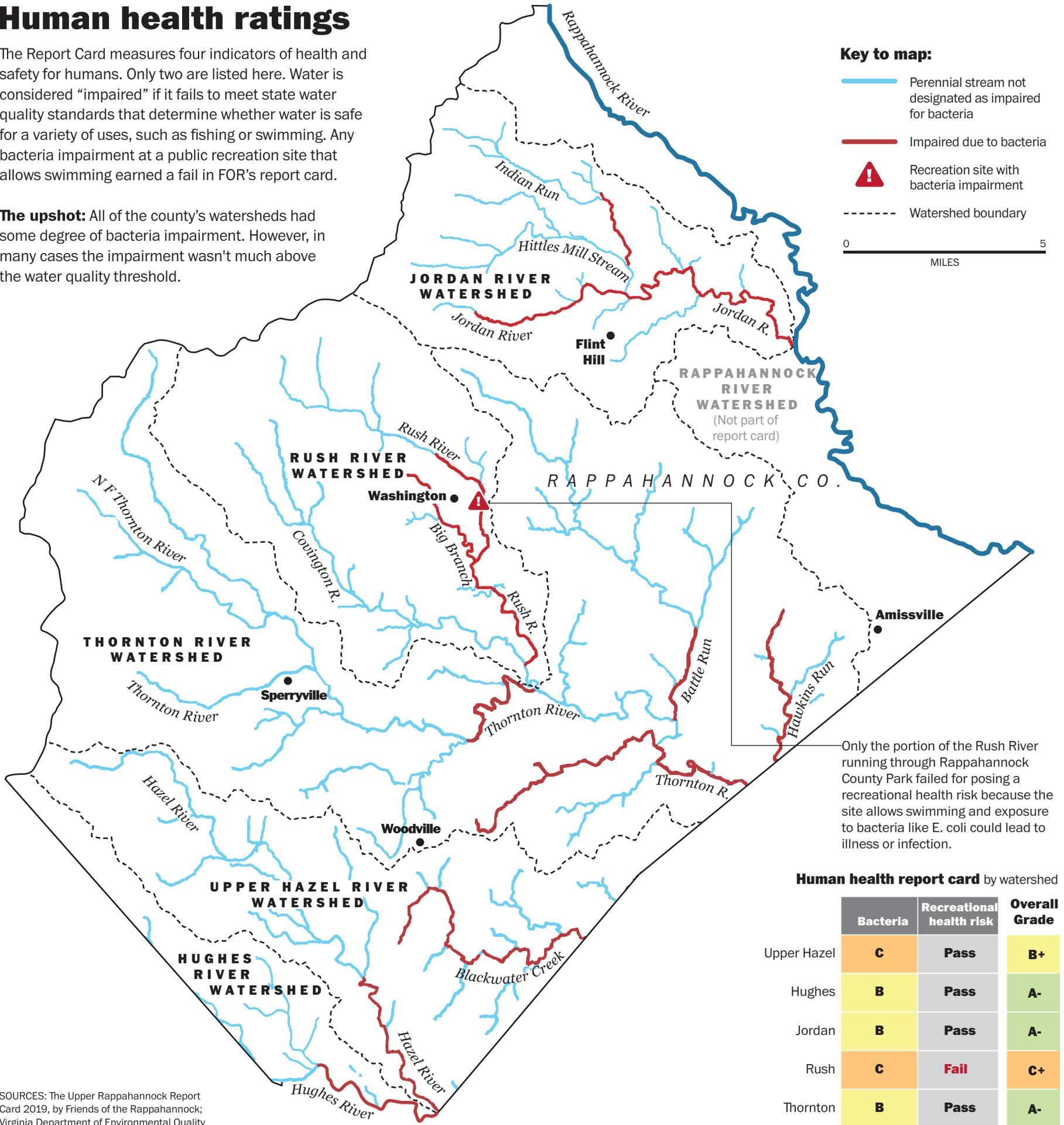
FOR’s report card, which draws on data from the DEQ and other agencies, was designed to draw attention to information that might not normally make it into public consciousness, said Lynch.

Stream impairment data, for example, is reported in DEQ’s biannual water quality assessment, but it can be hard to decipher, he noted. →

# Human health ratings

The Report Card measures four indicators of health and safety for humans. Only two are listed here. Water is considered “impaired” if it fails to meet state water quality standards that determine whether water is safe for a variety of uses, such as fishing or swimming. Any bacteria impairment at a public recreation site that allows swimming earned a fail in FOR’s report card.

**The upshot:** All of the county’s watersheds had some degree of bacteria impairment. However, in many cases the impairment wasn’t much above the water quality threshold.



SERIES GRAPHICS BY LAURA STANTON FOR FOOTHILLS FORUM

➔ The report card is a way of explaining what’s happening in the watersheds, recommending action and inspiring stewardship.

Yet the fact that the report card essentially mirrors publicly available data is one reason Welch and others shouldn’t have been surprised, said Greg Wichelns, district manager at the Culpeper Soil and Water Conservation District (CSWCD),

a semi-governmental agency that includes Rappahannock in its five-county service area and works to encourage conservation management best practices.

The other reason: His group had been working in concert with various environmental organizations, county officials and the Virginia Department of Health to address the bacteria impairment for years through its Upper

Hazel River project.

And they’ve made some progress. The DEQ’s 2018 assessment report noted that a section of the Rush River had been delisted. That’s a success story nobody talks about, Wichelns said. “There have also been positive trends in the Thornton at lowering the bacteria levels.”

So really, he said, the devil is in the details.

What the bacteria data show is that some samples from parts of the Rush River taken in past years exceeded the Virginia state standard for what’s safe for recreation — though not by much. And FOR determined that any DEQ-listed impairment at a public recreation site where swimming or wading is allowed earned a fail.

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# Protecting Paradise

## PARADISE

From Page 17

According to Lynch and other monitors, however, the overall picture is rosier.

“Rappahannock County streams did the best out of any streams in the report card,” Lynch noted. And the two healthiest rivers in the report card program so far were the Jordan and the Rush rivers.

### Headwaters to the bay

More than 750 miles of streams and tributaries course through Rappahannock, eventually flowing into the river from which the county takes its name. The Rappahannock and Jordan carve through the north; the Thornton, Rush, Covington, and Piney rivers bisect Rappahannock’s center, and the Hazel and Hughes rivers cut through the south.

All of them feed the Rappahannock as it expands from its headwaters in Shenandoah National Park toward the Chesapeake Bay.

Which means the health of those waterways matters not just for those who use and appreciate them in the county, but also the economies and quality of life of millions who live downstream, said Claire Catlett, Rappahannock field representative at the nonprofit Piedmont Environmental Council.

“Protecting Rappahannock County water resources is the place to start if you want to make a difference in everybody’s water — in the Chesapeake Bay and even next door in Culpeper County,” Catlett said.

Watershed protection is also a pillar of the county’s comprehensive plan, which defines Rappahannock as a scenic county and lays out land-use plans, principles and policies around that recognition.

According to the plan, amendments to which are currently under review, focusing commercial and residential development around the villages helps protect the county’s watersheds. And several of the policies listed under principle number three, which centers on preserving Rappahannock’s natural resources, acknowledge the county’s rivers as among its most significant environmental assets.

In 2009, Virginia’s DEQ published a 10-year clean-up plan for the Upper Hazel River watershed that offered a slate of prescriptions to mitigate the bacterial impairment in the Hazel River and its tributaries, including excluding livestock from streams, improving pasture management, planting trees and other vegetative buffers on cropland, identifying and correcting failing septic systems and maintaining functioning ones.

Those efforts, plus the installation of a sewer system in the Town of Washington in 2010, helped accomplish many of those water quality goals, in part by expanding on the work from the Culpeper conservation district and others to restore the Upper Hazel River. But those successes were not enough to remove all the tributaries from their bacteria-impaired status.

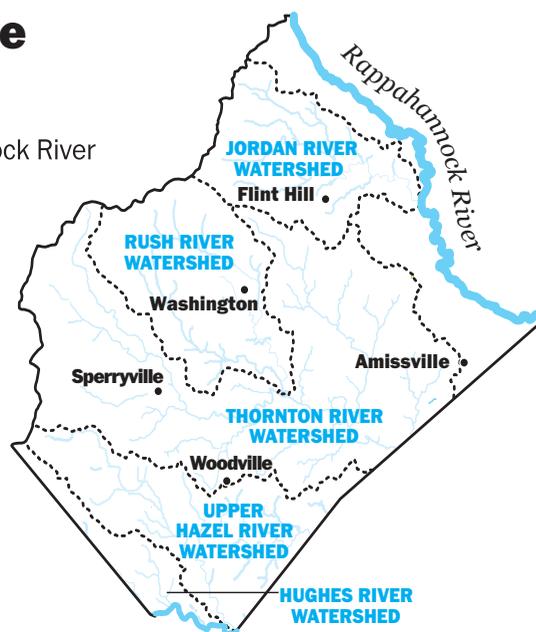


BY PIEDMONT ENVIRONMENTAL COUNCIL

**RappFLOW’s Forrest Marquisee** takes a water sample from the Rush River in Rappahannock County Park as Mike Wenger, left, watches the demonstration.

### How healthy are our rivers?

The 2019 Upper Rappahannock River Report Card evaluates water quality conditions and surrounding land uses of 12 of the watershed’s tributaries. In this project we focus on the five that run through Rappahannock County.



Overall report card by watershed

	Human Health	Land Use	Stream Ecology	Community Engagement	Overall Grade
Upper Hazel	B+	B	C+	B+	B
Hughes	A-	B+	C	C	B-
Jordan	A-	A-	B	B+	B+
Rush	C+	B+	C	A	B-
Thornton	A-	C	C	A-	B-

METHODOLOGY: The Upper Rappahannock report card assessed 12 rivers in Fauquier, Culpeper and Rappahannock, the three counties that comprise the Upper Rappahannock River watershed. It graded them on four subjects – human health, stream ecology, land use and community engagement – by looking at how they performed on 16 indicators, such as bacteria, forest cover, aquatic life and public access points. In many cases, Friends of the Rappahannock drew on government data from Virginia’s Department of Environmental Quality, the Environmental Protection Agency, soil and water conservation districts and GIS data.

SOURCE: The Upper Rappahannock Report Card 2019, by Friends of the Rappahannock

### Rush River’s progress

When the FOR report card came out, it sparked an initiative to monitor the Rush River among PEC and Rappahannock Friends and Lovers of our Waterways, or RappFLOW.

Members of both organizations and

Welch from the parks authority joined in a training in January on water quality testing.

PEC started doing water quality sampling and monitoring of the Rush River on a small scale just before coronavirus restrictions came into



### THE SERIES

**Part 1** (Oct. 29): For decades, Rappahannock has been able to preserve its natural beauty and stunning views. But more challenges are on the horizon.

**Part 2** (Nov. 12): Preserving a rural landscape is closely linked to maintaining a robust rural economy. Land-use tax breaks, innovations in product lines, distribution and marketing all help, but farms are still getting smaller, and fewer.

**Part 3** (Today): The views get most of the attention, but the county’s water and soil quality are a critical part of its environmental health. What shape are they in?

**Part 4** (Dec. 9): It may appear to be frozen in time, but Rappahannock is always in a state of flux. How it deals with such challenges as climate change and invasive species may be a key to its future.

**On RappNews.com**  
Read previous parts of this project at [rappnews.com/paradise](http://rappnews.com/paradise)

This series is funded in part by a grant from the Rappahannock League for Environmental Protection (RLEP). In compliance with Foothills Forum’s Gift Acceptance Guidelines, RLEP had no role in the selection, preparation or pre-publication review of these stories. Foothills Forum ([foothillsforum.org](http://foothillsforum.org)) is an independent, nonpartisan civic news organization whose mission includes providing in-depth explanatory reporting on issues of importance to Rappahannock County.

**GLOSSARY**

► **Riparian buffers:** Trees and other vegetation that absorb pollutants, such as nutrients from soil, bacteria, and sediment and keep them from entering waterways. They also help restore stream banks and prevent erosion. And they prevent excessive runoff, so that rain water can replenish groundwater rather than running into streams.

► **Macroinvertebrates:** Small, spineless, cold-blooded animals large enough to see without a microscope. Some macroinvertebrates are highly tolerant of pollution, while others are not, so measuring for them is a good way to determine the water quality of freshwater streams.

► **Stormwater runoff:** Rain water that does not get absorbed by land cover or soil or ponds and lakes and leaves the land primarily by overland flow into waterways. As it leaves the land it can carry things with it, such as sediment. It can also get filtered, and some land management practices are designed to do that.

► **Scenic rivers:** In 1970 Virginia approved the Virginia Scenic Rivers Act, which works with residents and local organizations to protect rivers in the state. More than 900 miles of rivers are currently protected under the Virginia Scenic Rivers Program. Virginia's Department of Conservation and Recreation has provided this designation to three rivers in Rappahannock — the Rappahannock, the Jordan and the Hughes.

— Sara Schonhardt

**How our streams can get polluted**

There are many different causes — agriculture, septic systems and wildlife among them. Some pollutants occur naturally and others, like fertilizers, are synthetic.



→ force. Catlett continued biweekly testing at three monitoring sites and provided her data to the DEQ, which can draw on certain data from outside the agency to list and delist impaired waters, track progress toward restoring those with cleanup plans and target waters for future DEQ monitoring. (The data is submitted through the Chesapeake Monitoring Cooperative, which is also the program that trained PEC and RappFLOW to do the water quality sampling.)

RappFLOW secretary Forrest Marquisee, a former Foothills Forum adviser, took over the E. coli monitoring on the Rush from Catlett in August. In an email to RappFLOW members ahead of their October meeting, he said testing trends show that the park is not currently threatened by unsafe levels of E. coli.

Catlett found the same results over the summer at both the park and the monitoring point near Sunnyside Orchard Road, a DEQ testing site that allows them to compare their findings with earlier data. A testing site further upstream off Harris Hollow Road has continued to show high levels of E. coli, which Catlett suspects could be related to stormwater runoff.

No one is currently investigating the cause of that impairment, but RappFLOW plans to work with Catlett and PEC to create a more comprehensive testing network and wants to add more testing sites.

Dave Evans, who covers Rappahannock for the DEQ, said the department conducted weekly tests at

three sites in the county this summer, not including the park, and while some of the samples indicated there is more bacteria going in the water than the water quality standard says is appropriate, "it's not super high."

**The power of people**

Having good data on stream health that could identify sources of bacteria will help groups know when events and land-use practices are having a negative impact, said RappFLOW board member Rachel Bynum. It could also spur support for mitigation measures — though COVID-19 protocols have temporarily limited RappFLOW's meetings and affected momentum for activities, Bynum noted.

In addition to the monitoring done by RappFLOW and PEC, Old Rag Master Naturalists, a volunteer group helping manage natural resources in the region, conducts regular sampling of small cold-blooded animals, known as macroinvertebrates, in several designated spots around Rappahannock County in partnership with the Culpeper conservation district.

Mike Wenger, who coordinates the master naturalists' citizen monitoring efforts and is a board member of the Rappahannock League for Environmental Protection, which partly funded this reporting, said that during a survey volunteers count the macroinvertebrates by species and check other stream health indicators, such as water temperature, relative sedimentation and type of vegetation

cover.

"If the stream is healthy for macroinvertebrates, it's also healthy for fish and amphibians who eat the bugs. And then also for the mammals and birds who eat the fish and amphibians," Wenger said, noting that many bugs aren't affected by the bacteria that harm humans, so a stream can be healthy for macroinvertebrates but still have E. coli.

What matters most about all of this testing, he noted, is that it helps fill in gaps that government agencies don't have the people, time or resources to gather; serves as an early warning system to detect emerging problems; gathers and maintains additional data to fill in the picture; and creates awareness and education about stream health.

"I think we're really seeing the benefits of a lot of good collaboration and communication among the parties," Evans said. "And so I think it bodes well for continued improvements."

As is the case for RappFLOW, however, COVID-19 has mostly put an end to the master naturalists' macroinvertebrate monitoring since it requires sitting closely around a small table sorting and counting for an hour or more, said Wenger.

**Challenges ahead**

In Rappahannock, agriculture, septic overflow and wildlife all contribute to watershed impairment. The most common sources of pollution are bacteria, sediment and nutrients that can come from fertilizers and animal manure.

The Culpeper conservation district is working to address the impact of septic effluent in groundwater because it flows into streams that lead to the bay.

Sediment — which can come from agriculture, land development and even recreation — is another problem since too much of it over too long a time starts to restrict the water movement along their banks, said Wichelns.

According to Catlett, too much sediment blocks oxygen from reaching deeper waters and will suffocate fish and invertebrates that live in the bottom of streams. Too much phosphorus and nitrogen — chemicals that are produced in agriculture — can cause harmful overgrowths of algae. These blooms block light, raise pH levels and reduce the availability of oxygen, threatening habitat conditions for fish.

Waterborne bacteria, on the other hand, isn't life threatening, but can cause illness or infection in humans.

More extreme rainfall and heat is exacerbating the problem, with rising temperatures putting stress on aquatic life and increased flooding raising the potential for erosion and runoff.

A water supply plan prepared for the county in 2011 and reviewed in 2018 found that drought and extreme heat combined by increased storms have raised concerns about whether the water supply will continue to meet the county's needs.

That's why environmentalists say natural buffers such as trees and

**WHAT IS FOOTHILLS FORUM?**



Foothills Forum is an independent, community-supported

nonprofit tackling the need for in-depth research and reporting on Rappahannock County issues. The group has an agreement with Rappahannock Media, owner of the Rappahannock News, to present this and other reporting projects.

→ More at [foothillsforum.org](http://foothillsforum.org)

**What do you think?**

Let us know what you think of this project. Send feedback to [editor@rappnews.com](mailto:editor@rappnews.com).

See **PARADISE**, Page 20