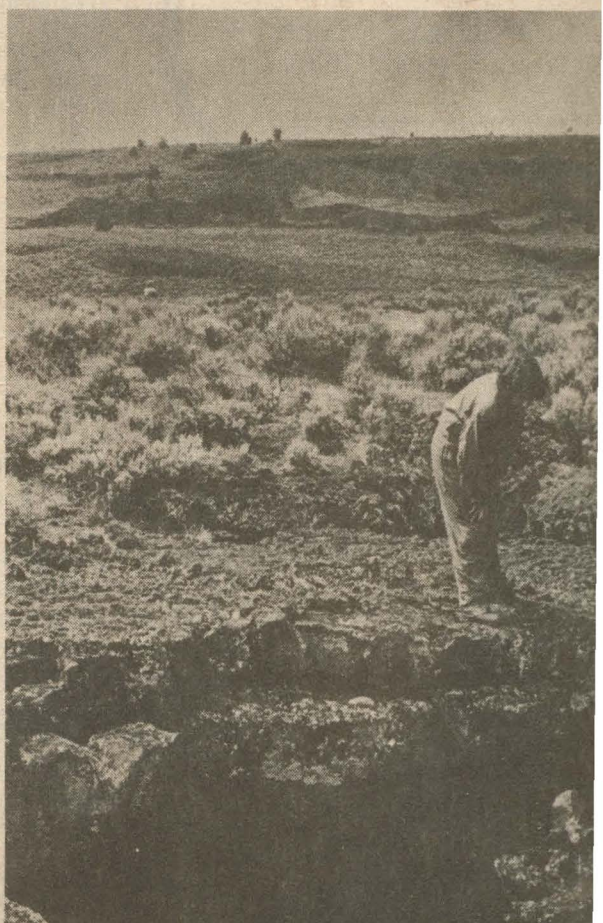
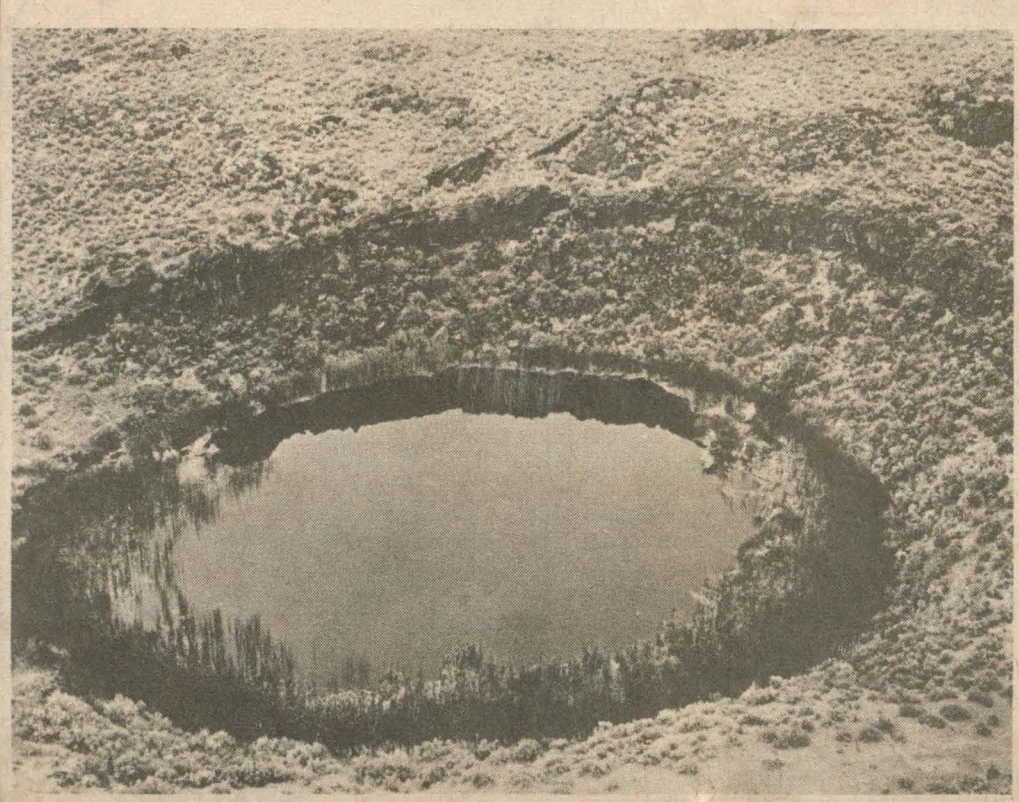




VARIED FEATURES — Significance of Diamond Craters lies in variety of volcanic features in small area. Geologist Bruce Nolf studies driblet cone, formed like a tiny

non-explosive volcano, top. Cinder cones, above, are example of explosive volcanism, also seen in area, being considered for protection from stone removal.



MAN NEAR CRATER — The lake-filled crater is a non-explosive volcano, top. Cinder cones, above, are example of explosive volcanism, also seen in area, being considered for protection from stone removal.

MALHEUR MAAR — The lake-filled explosion crater, formed by a gas eruption or steam blast, offers a marshy habitat for a land of sagebrush and juniper.

Photos by **CONNIE HOFFERBER**

NATURAL BRIDGE — Ellen E. Edict, cave ecologist who is studying lava tubes and caves of Diamond Craters, peers over edge of natural bridge that stretches across crater.

STONE THEFT — Chad Bacon, the Bureau of Land Management's district manager, examines the site where a thin slab of pahoehoe lava has been removed, presumably for decorative stone veneer.



BLM, stonecutters square off over mining Diamond Craters

By **CONNIE HOFFERBER**
of The Oregonian staff

BURNS — Diamond Craters lies like a pock-marked black bubble between the lush green of the Malheur National Wildlife Refuge and the rising wall of Steens Mountain.

It's not an inviting place, with rattlesnakes, mosquitoes and hot black lava, and little living relief to break the shimmering heat that lies on it in the summer like a blanket.

Nor is it easy to find, and few people try, even though the Bureau of Land Management, which owns the 16,000 acres, has put up signs.

But the area 60 miles southeast of Burns has become a battleground where the federal government and Northwest geologists, who want to protect the entire area for research and recreation, are fighting stone dealers who want to "harvest" the ribbonlike flows for fireplaces, chimneys and home exteriors.

The area is temporarily protected from stone removal under the classification of Research Natural Area, but Congress must act before it can be reclassified as permanently protected.

The protective status hasn't stopped commercial stone merchants, who have illegally removed slabs since 1970. Dick Miller, BLM realty specialist, said classification of the area as a Research Natural Area. Faced with the Federal Land Management and Policy Act of 1976, the bureau has until 1991 to either persuade Congress to set aside the entire area, persuade the secretary of Interior to set aside 5,000 acres, or open it up to mining claims.

"We are searching for the best means of protection we have for Diamond Craters," said Chad Bacon, manager of the Riley-Drewsey BLM district. "We've said, yes, it's nice and unique but, with Bruce and Ellen, we are trying to get answers to why it's nice and unique."

where there might be biotic or geologic resource damage.

Stone removal from Diamond Craters is not new; it has been going on for more than 100 years, according to Bacon. Most of the homesteads in the area used the stone, as well as Pete French, who hauled 250 tons eight miles to build the famous Round Barn in the 1880s. The wildlife refuge headquarters, built in the 1940s, has steps and sidewalks of the stone.

Sunriver and Black Butte Ranch resorts have incorporated Diamond Crater lava into their construction. State Sen. Robert Smith of Burns said stone for his house came from a portion of the lava that laps onto private land adjacent to the area.

Before 1977, only civil trespass charges were filed against those illegally mining the area, and fines were levied as to the value of the stone in possession. Since then the bureau has brought criminal charges on seven cases for theft of government property. The fines were worked out in public service.

Robinson and Prowell are in the midst of the most recent legal battle with BLM. In 1978, they say, they were removing lava off the private adjoining land. However, bureau officials say they found the men one mile into public land.

The two have moved their operation to Black Butte near Shoshone, Idaho, where they have filed claims on a community lava pit also on bureau land. They are embroiled in more arguments over the status of the stone with that district.

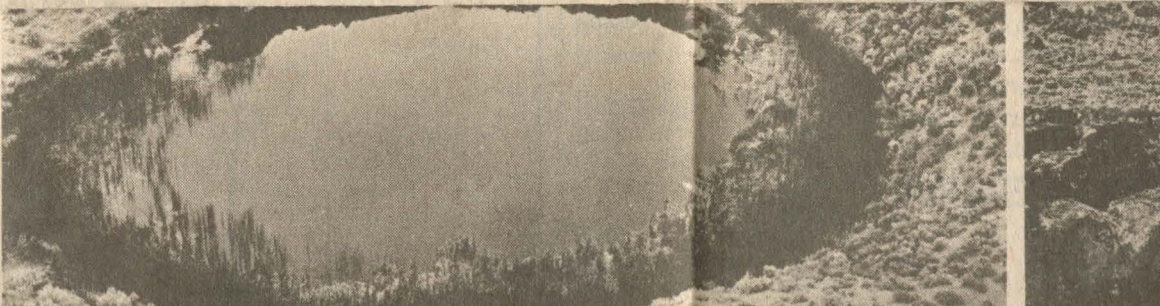
"There is not a legal place to pick up lava rock in Oregon," said Robinson. "Demand has to be satisfied by some means so people are stealing lava or are going out of state. We're proposing the withdrawal area be reduced while still retaining protection for the significant features. We only want 1,500 acres to mine. They can have the other 15,000 acres."

Geologist Nolf and BLM, however, say the entire 16,656 acres must be protected for research purposes.

"We haven't discovered where the initial vent was. Without the slab, one cannot trace the flows back to determine the beginning," said Nolf.

BLM plans to have its studies of the area completed by fall and is soliciting public comment on the proposed withdrawal before it faces Congress.

"Having the area protected won't keep the stone from being removed when there is such a great demand," said Robinson. "It would be better if BLM worked out a permit system where they could manage it and keep their eye on miners."



that at least 300 acres of Diamond Craters has been altered not only by removal but by crushing of the fragile slabs under the tread of heavy equipment.

Those wanting to save the area won't get any help from rare plants or animals, though golden eagles and long-eared and great-horned owls nest in the craters.

Its uniqueness is cast in stone.

"Every mechanism that can be used to form a crater is here," according to Bruce Nolf, geology instructor at Central Oregon Community College in Bend.

"Neither George Walker (U.S. Geological Survey geologist who has mapped Eastern Oregon geologically) nor I am aware of an area of basaltic volcanism anywhere in North America that has as much diversity in such a small area.

"It is a museum of basaltic volcanic features."

Ellen Benedict, speleologist and Portland State University cave ecology instructor, echoes Nolf's enthusiasm for the educational possibilities of the area.

"I can bring my cave ecology students here to examine structures in miniature that form larger caves such as Malheur Cave," said Mrs. Benedict, who is mapping the caves for BLM.

In geologic terms, the area is young, probably only 20,000 years old, according to Nolf, but some scientists say it's even younger. Unlike other volcanic areas, erosion has not stolen its features.

The area was formed when magma poured from a central vent, creating a shield of lava shaped like a huge pancake six miles across. Nolf compares it with a hot water bottle that was filled and hardened, then filled again, forcing the surface up into domes that, reaching their maximum apex, collapsed, cracking and folding, releasing more lava to run down the domed sides.

Further volcanism, — both explosive and quiet — formed pit craters and cinder, dribble and spatter cones.

It's the sheets of pahoehoe lava that stone dealers are after. The surface has cracked into slabs from 1 to 3 inches thick that are perfect for decorative veneer.

"It's the cleavage factor that makes this stone so unique, the way it breaks off into manageable slabs," said James Robinson, 32, who with his brother-in-law, Roger Prowell, owns Decorative Lava Stone Inc. in Bend.

"The thinness makes it much lighter, which allows tremendous amount of freedom in its use, and makes it one of the cheapest building stones around, about \$1 a square foot or \$200 a ton.

"The main reason we want the stone is that people are demanding it."

Robinson figures he could haul \$12 to \$15 million worth of stone off 1,200 to 1,500 acres of Diamond Craters in the next 25 years, if the bureau would lift its proposed withdrawal from mineral entry.

The area has been protected on a temporary basis since 1956, when the bureau set it aside under the Recreation and Public Purposes Act to seek state park status. Because of high maintenance costs in such a remote area, the state declined to purchase it.

The area was forgotten, though still protected under the temporary status (a status that should have been removed after 18 months but never was) until 1970, when the first commercial stone removal was made.

Alarmed, the bureau moved swiftly to propose classification of the area as a Research Natural Area. Faced with the Federal Land Management and Policy Act of 1976, the bureau has until 1991 to either persuade Congress to set aside the entire area, persuade the secretary of Interior to set aside 5,000 acres, or open it up to mining claims.

"We are searching for the best means of protection we have for Diamond Craters," said Chad Bacon, manager of the Riley-Drewsey BLM district. "We've said, yes, it's nice and unique but, with Bruce and Ellen, we are trying to get answers to why it's nice and unique."

A relatively new category BLM is considering for the area is an Area of Critical Environmental Concern, which is designed to protect areas of special value