



SHALE COUNTRY

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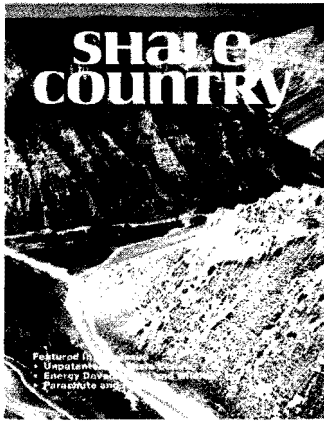
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Featured In This Issue

- Unpatented Oil Shale Claims
- Energy Development and Wildlife
- Parachute and Rifle

August/September 1982

THIS ISSUE



On the cover: A glimpse of the terrain north of the town of Parachute, CO, near Parachute Creek.

SHALE COUNTRY investigates unpatented oil shale claims (p. 6-8), finds out how Parachute and Rifle are faring (p. 9-12), visits some people who have built their own homes (p. 15-16) and catches up with wildlife (p. 17-20).



Looking Ahead	1	Utah's Bonus Bid Monies Go to Work
Perspective	2	The Synthetic Fuels Corp. Picks Its Pace
Vignette	4	Putting Oil Shale on the Map
Potpourri	6	Unpatented Oil Shale Claims Flood the Courts
Community Profile	9	Parachute and Rifle—Holding Their Own
A Look At	13	The Human Service Challenge
Real Estate Corner	15	Hands-On Home Building
Environment	17	Maintaining the Land for Wildlife—and People

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SHALE COUNTRY

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Utah's Bonus Bid Monies Go to Work

"Finding front-end financing" is a recurrent theme for state and local officials concerned about energy-related growth. As development begins, an increasing population needs new roads, schools, social services...and where does the money come from?

Utah may now have a solution to part of the problem. In 1974, oil shale tracts U-a/U-b were leased from the federal government for a bonus bid of \$121 million payable in annual equal installments. Under the lease terms, the fourth and fifth payments could be offset by certain approved development expenditures, and through 1977, the companies actually paid the Dept. of the Interior \$72 million. According to the law, 37-1/2 percent of that sum was to be turned over to Utah to be used for public-impact purposes.

It didn't quite work out that way, though. Because of various legal questions the money has been tied up in escrow, and Utah has been unable to spend one cent.

All this has now changed. The legal questions have been resolved and a check payable to the State of Utah for \$48.5 million, which includes accrued interest, was delivered to the Gov. Scott Matheson in January. The money has now been invested and is earning interest to the tune of \$16,000 per day.

Piling interest on interest

With the funds finally in hand, the question then became, "How to spend it but keep it intact?" And it seems that through some creative legislation, Utah may have found the answer.

According to Jack Lyman, director of external affairs for the White River Shale Oil

According to Jack Lyman, director of external affairs for the White River Shale Oil Corp. (the management contractor for the leases), last June legislature established a

Looking Ahead

permanent community-impact fund with 70 percent of the bonus money (approximately \$35 million), as well as 70 percent of the money obtained from other federal leases—mostly coal. An important feature of this legislation, Lyman notes, is that unlike other state funds, interest generated by the money will be allowed to stay in the account, rather than reverting back to the General Fund. And a restriction that the money only be distributed in the form of loans also insures the revolving nature of the account.

As for the remaining 30 percent of the bonus money, Lyman reports, "It will be dealt with in next January's general session. It will likely be made available to state agencies for impact mitigation. For example, it couldn't be used for state-employee raises, but the Dept. of Transportation might receive money to construct a road in an energy-impacted area."

The impact fund will also have another source of revenue. In addition to bonus money, the federal government returns 50 percent of the mineral production royalties it receives to the state. Currently, Utah receives about \$30 million a year from royalty payments, and 32-1/2 percent of this money will be added to the impact fund, to be used as either grants or loans.

Statewide financing source

To obtain aid from the impact fund, local officials from all areas of Utah will present

requests to the Permanent Community Impact Fund Board, which consists of representatives of state agencies and various state citizen boards. But since the bonus money is shale money, shouldn't it be earmarked only for shale impacts?

"From a practical standpoint the bonus bid money is generated from our area," Lyman says. "Local shale-area communities have needs now, but they are generally a result of oil and gas development. If this money were distributed now as grants to pay for these impacts, later when shale development begins to cause impacts, the legislature may say, 'We have already taken care of your problems.' But with the loan mechanism and the interest adding to the fund, the communities will ultimately get a lot more than the original \$48 million.

"The legislature will annually designate an amount of money for impacts, and will leave the remainder in the fund to accrue interest, letting the amount build for future impacts. I really think the way Utah handled this legislation can serve as a model for other states. It separates the bonus money from royalty money. This is important because bonus monies come in lump sums, and provide resources for front-end financing. But royalties are continuing payments that can help with ongoing impacts. I think this legislation is a good way to deal with current problems while preserving funds for future impacts." K.C. □

Utah's bonus monies could be used to offset costs of road construction in energy-impacted areas.



The Synthetic Fuels Corp. Picks Up Its Pace

In 1980, when Congress established the U.S. Synthetic Fuels Corp. to spur domestic production of synthetic fuels, the move was hailed by some as a breakthrough in federal energy policy. Yet others decried the decision, viewing it as a fast-track method to development that could be detrimental to environmental and socioeconomic concerns. But which way the cards will fall still remains to be seen. There have been a lot of changes since 1980, and the Synfuels Corp. has spent much of its short lifespan getting on its feet.

The corporation, created under the Energy Security Act of 1980, was to be a catalyst in creating a private-sector synthetic fuels industry in this country. To this end, the corporation has available approximately \$15 billion to award to private companies in the form of loan guarantees, purchase commitments, direct loans and joint ventures. The goal of the Synfuels Corp. is to go out of business—leaving a commercially viable, private synthetic fuels industry behind. Thus, a limited life was planned, and by 1984, the corporation must present a comprehensive strategy for achieving national synthetic fuels production goals for Congressional approval. At that point, Congress can choose to appropriate more money for the Synfuels Corp., up to a maximum of \$68 billion. But even if the corporation's plan is approved and it receives more dollars, authority to obligate funds ends after September 1992, and it must tie up all the loose ends and close up shop by 1997.

In technical terms, the Synfuels Corp. is what's known as a quasi-governmental agency. What this means, says Karen Hutchison, director of media relations for the corporation in Washington, DC, is that the corporation was created and funded by Congress, but it does not have to go to Congress annually for funding approval. And the corporation operates as an independent entity, more like a private financial institution than a government agency. Just one example of the corporation's freedom from many governmental standards is that its employees do not fall under Civil Service Commission laws.

Reviews and re-reviews

Synthetic fuels, for the corporation's purposes, include petroleum and natural gas produced by the chemical or physical transformation of domestic coal—including lignite and peat—oil shale and tar sands, and the generation of hydrogen by electrolysis. But with all these different synfuels, and the variety of techniques that can be used to produce them, how does the corporation decide which company gets how much money? Hutchison notes that the corporation issues solicitations inviting proposals for synthetic fuels projects from private sector concerns that might be interested in applying for federal assistance, and asks them to submit proposals containing the same kinds of information they would furnish to private investors. The sponsors should describe the nature and status of the project, the present and projected econom-

ics, and related financial information.

"Then we go through a rigorous evaluation process," she explains, "that occurs in two phases. In the first phase, we look at such basic criteria as: does the project meet our definition of synthetic fuels and 'synthetic fuels projects'?"

During this stage the project is examined for such things as whether or not a company has the required amount of equity sponsorship. Does it have the rights to the technology, is water available, does the company have the rights to the plant site and what kind of engineering design work has been done? Are the permits on hand or can they be obtained on a realistic schedule? Is there anywhere else it can get the money?

In the second phase, the corporation reviews the project for such things as the state of the technology—has this technology ever been demonstrated in a plant and what do the data show? Then there's management capability: The sponsor has to have the expertise on hand to manage the project through construction and operation. The project must also have the potential for replication—will this project be a one-time plant or can it be successfully adapted to other locations? It is reviewed for regulatory compliance, including socioeconomic considerations. And, of course, it is examined to determine if it is economically sound and if there is a market for the product.

To do this type of review requires a great deal of expertise, and the corporation has a staff of 170, including professionals from all fields—engineers, marketing strategists, environmental scientists, lawyers, planning personnel and economists—directed by a seven-member board. (Currently two board members who were appointed last May are still awaiting Senate confirmation.) The board members are all from the private sector, and their backgrounds include real estate, financing, engineering and energy development. At any stage of the review process, the board has the authority to step in and eliminate a project.

A slow start gains momentum

So far, the Synfuels Corp. has sent out two proposal solicitations and is expecting to send out a third in late summer or early fall. The first solicitation has turned into a long drawn-out process. The solicitation closed

March 1981, and negotiations for awards to projects received by that date are still underway. According to Hutchison, "When the change in administration occurred in 1981, the interim board of directors resigned and a new one had to be nominated. In the meantime, the corporation had no policy-making body. When Ed Noble was appointed chairman in October, the staff started reviewing the 68 proposals that had been received. They realized that the corporation had not been specific enough in requesting the types of information needed to properly evaluate the proposals. So a request for more specific information was sent to the project sponsors, and only 28 responded.

"The board eliminated 17 of these last January on maturity grounds," Hutchison reports. "Then in March it eliminated five more and one project withdrew from consideration. Talks continued with the remaining companies and from these discussions three more projects were moved from the initial to the second solicitation. Thus, from the first solicitation, two projects currently remain under negotiation: the Hampshire Energy Project near Gillette, WY, which will be coal liquefaction (coal to gasoline) by indirect methods, and the Breckenridge Project in Kentucky, which is direct coal liquefaction."

The second solicitation, though, proceeded at a much quicker pace. When it closed in June, the Synfuels Corp. had received 35 proposals. The first review was held in July and 21 projects were eliminated, several in Colorado. But two area projects did make the first cut:

—The Paraho-Ute Shale Oil Facility in Uintah County, UT. Paraho-Ute plans a surface retorting system designed to produce 12,000 barrels of shale oil a day. It is asking for \$987 million in a combination of loan guarantees and price supports.

—Sunnyside Tar Sands Project, Carbon County, UT, which plans to make bitumen (oil) from tar sands through surface mining and retorting. The bitumen would then be upgraded to 34,675 barrels per day of synthetic crude. It is also asking for price and loan guarantees.

An inheritance from DOE

So, far, no shale projects have actually ob-

tained any awards from the Synfuels Corp., although last summer Union Oil Co. of California received government price guarantees of up to \$400 million for its shale project in Garfield County, CO, and Tosco, a former partner in the Colony Shale Oil Project, had received a loan guarantee of \$1.2 billion. However, these awards were made by the Dept. of Energy (DOE) rather than the corporation. Hutchison says, "The DOE was charged with making awards while the corporation was being organized. Once we got going we took over the monitoring of the Union and Colony projects."

Of the Tosco loan guarantee, she notes, "The loan guarantee made to Tosco for its share of the Colony Shale Oil Project was used to guarantee a loan from the Federal Financing Bank. So, in the case of Tosco, what you had was essentially the government backing a government loan. For any future loan guarantees made by the corporation, this practice won't be followed. Awards of financial assistance made by the corporation cannot be eligible for funding through the Federal Financing Bank. Sponsors receiving corporation assistance must go to private financial institutions for the funds they require."

When the Colony Project was moth-balled last May, Tosco had already spent \$80 million of its loan guarantee—money it has since repaid. Hutchison says, "The \$80

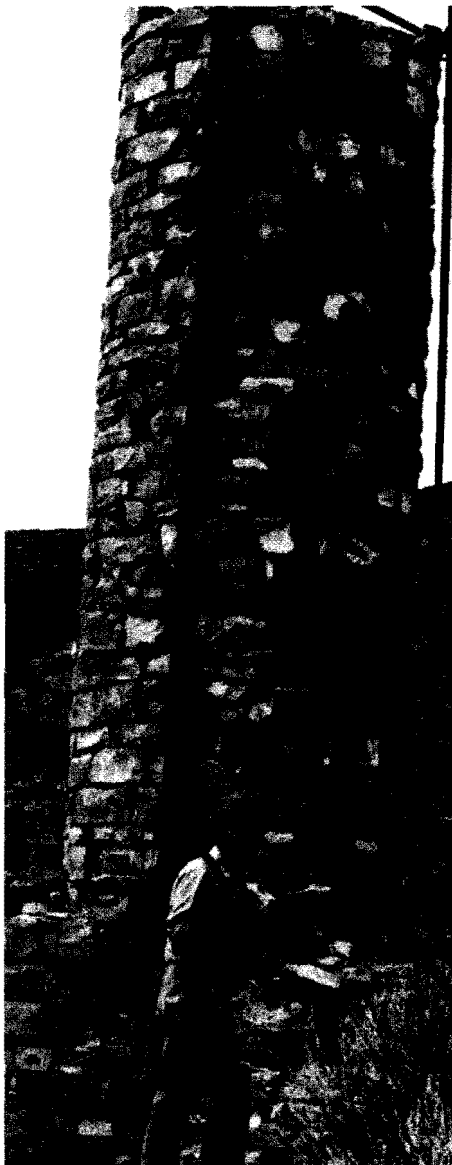
million used by the corporation to guarantee Tosco's loan is money that cannot be used to fund other projects. However, approximately \$1 billion of the loan guarantee awarded to Tosco was never actually used to guarantee a loan. There is a question, therefore, as to whether or not the corporation can use this money in the future for another financial award. It's a gray area of the law and the corporation is now studying the question."

Now that the Synfuels Corp. is finally in the business of putting itself out of business, it will disburse funds by early 1983. It will then spend the remainder of its time monitoring projects that have received financial backing and devising a production-strategy game plan to present to Congress in 1984. In the meantime, though, there's a chance that its intended short life might be shorter than anticipated. Currently several proposals are before Congress, one of them co-sponsored by Colorado Republicans Sen. Bill Armstrong and Rep. Hank Brown, to abolish the corporation. However, Hutchison points out that "other bills have been introduced that propose to expand the corporation's authority to include biomass (methane from organic matter) and solid-waste recovery. But, the corporation's a creation of Congress, and so what happens to it is up to Congress—whatever it tells us to do we'll do." K.C.□



Synthetic Fuels Corp. staff and board members meet with representatives from environmental and community organizations in Sale Lake City.

Putting Oil Shale on the Map



Donnell examines the Galloupe Retort in the Willow Creek area of Utah. The retort is believed to have been built in 1919.

Today, if anyone wants to know where the oil shale resources of Colorado's Piceance Creek Basin are located, all they have to do is look at a map. But that wasn't always the case. Someone had to go out and explore the Basin to determine where the oil shale resources lie, and that someone was John Donnell.

Donnell, a native of Norwood, MA, and now a resident of Littleton, CO, had never even heard of oil shale before he came to the U.S. Geological Survey (USGS) in 1948. He obtained his bachelor's degree at the University of Alabama, had been in the service and had completed 2 years of graduate work at Stanford when he interviewed with the USGS. When the interviewer asked where he would like to work, he chose Colorado, and his venture into oil shale began.

"In the spring before I left Stanford," says Donnell, "I chose to go to Colorado for the USGS. Even though I hadn't heard of oil shale until 1948, I have never regretted my decision.

"Although we completed the first map of the entire Basin that shows the members of the Green River Formation, there were some people who preceded us in mapping some sections of it. In 1914, the USGS did some preliminary mapping of the Basin and expanded on these in 1916 and 1923; in

1945, other USGS geologists mapped the Naval Oil Shale Reserves 1 and 3 at Anvil Points near Rifle.

"When the USGS initiated oil shale studies in 1914, little was known about the character and persistence (horizontal extent) of individual beds in the column of oil shale. However, Wilmont Bradley, former chief geologist of the USGS, made a definitive study of the oil shale in Colorado and Utah, and the work was expanded by Donald C. Duncan and Norman M. Denson of the USGS in their 1945 geologic investigation of the Oil Shale Reserves. This provided us with a good knowledge base for our studies, which started in 1948."

Donnell's first assignment as a junior geologist was to map the oil shale in the area near De Beque, CO. After that, he mapped the western side of the Basin along the Cathedral Bluffs and then completed reconnaissance mapping of the rest of the Basin.

"Today's mapping efforts are more comprehensive than ours were," says Donnell. "When we did reconnaissance mapping, we mapped a large area in a small period of time, and the maps were published at a scale of 2 miles per inch, whereas now the standard map scale is 2-1/2 inches per mile.

"Because of the scale used, the work we did was not very detailed. Most of the work was done through general observation, rather than detailed measurements," he notes.

"In most of the Basin, we didn't have topographic base maps to plot our geological



These ruins near the Galloupe Retort may have been the house the builder occupied.

data on. The topographic maps available today make the work a lot easier."

A family affair

Donnell spent his entire career with USGS until he retired in December 1980. And, even though you might think it would be difficult for a family when one member spends long periods of time away from home working in the field, Donnell found just the opposite to be true. "It turned out to be very nice life for my family," he says. "Since the field season ran from early June to Labor Day, we could pack everyone up and rent an apartment or house near the area I was working in.

"The first summer was spent near De Beque," Donnell continues, "and then we spent several summers near Meeker and Rifle, and two or three others near Mesa and Collbran. It was nice to have the family come along with me, because I'd be able to settle into a routine." According to Donnell, his four children, two boys and two girls, enjoyed their summers on Colorado's Western Slope. One daughter is still in high school, and the others have now gone on to their own careers—none of them related to geology.

Mapping out a career

Although most of Donnell's work has been devoted to studying oil shale resources in Colorado, he has had the opportunity to dabble in other areas. He assisted in mapping Naval Oil Shale

Reserve 2 in Utah, and in 1960 he journeyed to Alaska to do a reconnaissance appraisal of oil shale deposits in that state. On one of his few side trips from oil shale work, Donnell mapped coal deposits in Colorado and Kentucky.

During a career that has already spanned more than 3 decades, Donnell says the most memorable work he did was along the west margin of the Piceance Basin. "It was very interesting to work in that area," he reports. "We found that the oil shale resources could be extracted through surface-mining techniques instead of underground mining, and therefore a greater percent of the in-place resource could be recovered."

Today, Donnell is retired from the USGS and working as a consultant, studying oil shale reserves for a number of companies. He also was recently appointed to the Oil Shale Environmental Advisory Panel (OSEAP) as a member-at-large.

The changing times

During the past 30 years, oil shale technologies have changed, processing methods have changed, and Donnell has observed it all. "The biggest change I've seen has been in the amount of information that is available," Donnell comments. "When I started, shale oil assays from only five core-hole samples were available from the Piceance Basin. And, there weren't any available from other basins in that area. Now, we have assays from 300 cores that

are publicly available for use in resource appraisal of the Piceance Basin, 100 from the Uinta Basin in Utah, 100 from Wyoming's Green River Basin.

"Also, back when we started mapping the area, we only knew what we could observe from the outcrop—that is, the exposed oil shale that can be seen from the surface. We had no idea what was in the center of the Basin where the oil shale is very thick, because we had none of the information that is now available from wells drilled in the area.

"Another bit of information we now have," he continues, "is that other minerals are associated with the oil shale. For instance, no one knew about the saline minerals, which are nahcolite, dawsonite, and halite, until oil and gas drilling took place in the 1950s."

But, not only has mapping of oil shale changed over the years, the scope of the industry has shifted dramatically. Donnell notes that "in 1948, the only work being done was at the U.S. Bureau of Mines facility at Anvil Points. Although activity has slowed, interest in producing shale oil is still high.

"However," he adds, "the oil shale business is like the petroleum industry. The interest is very cyclical—interest peaks and interest declines.

"Personally," he continues, "I think we'll have to utilize oil shale sometime. After all, there is only a finite supply of liquid crude available, and I can't envision that we'll be able to replace certain needs with other fuels such as coal. We have to have a synthetic substitute for liquid crude in order to meet transportation and petro-chemical requirements, and I think we'll have to turn to shale oil to serve both those needs.

"The big problem with oil shale development, of course, is the size of the initial capital investment. A breakthrough that would cut the initial costs would be a real boost to the industry. Until that comes, I hope what Union is doing at its project near Parachute will stimulate others in the industry to move ahead."

Donnell wants to stay involved in the shale business. "I want to keep active so I can make a contribution, and hopefully, I can keep at it long enough to see commercial development occur." A.W. □

Potpourri

Unpatented Oil Shale Claims Flood the Courts

By Carol Edmonds Sullivan

In the late 1940s, John and Joan Savage began to acquire oil shale claims in Colorado for themselves. A chemical engineer, Savage had traveled to Scotland to see commercial oil shale production, and he had worked on shale claims for several oil companies.

In those days, the couple would pore over courthouse records to see who had located oil shale claims, map the claims and geological formations, and then set out to find the holders. For those claims they were able to purchase, the Savages would perform the work required to take the claims to patent. After they had accumulated \$500 worth of assessment work (digging discovery pits, collecting samples, performing assays), they would apply to the U.S. government for a patent—in effect, a deed from the government for the land.

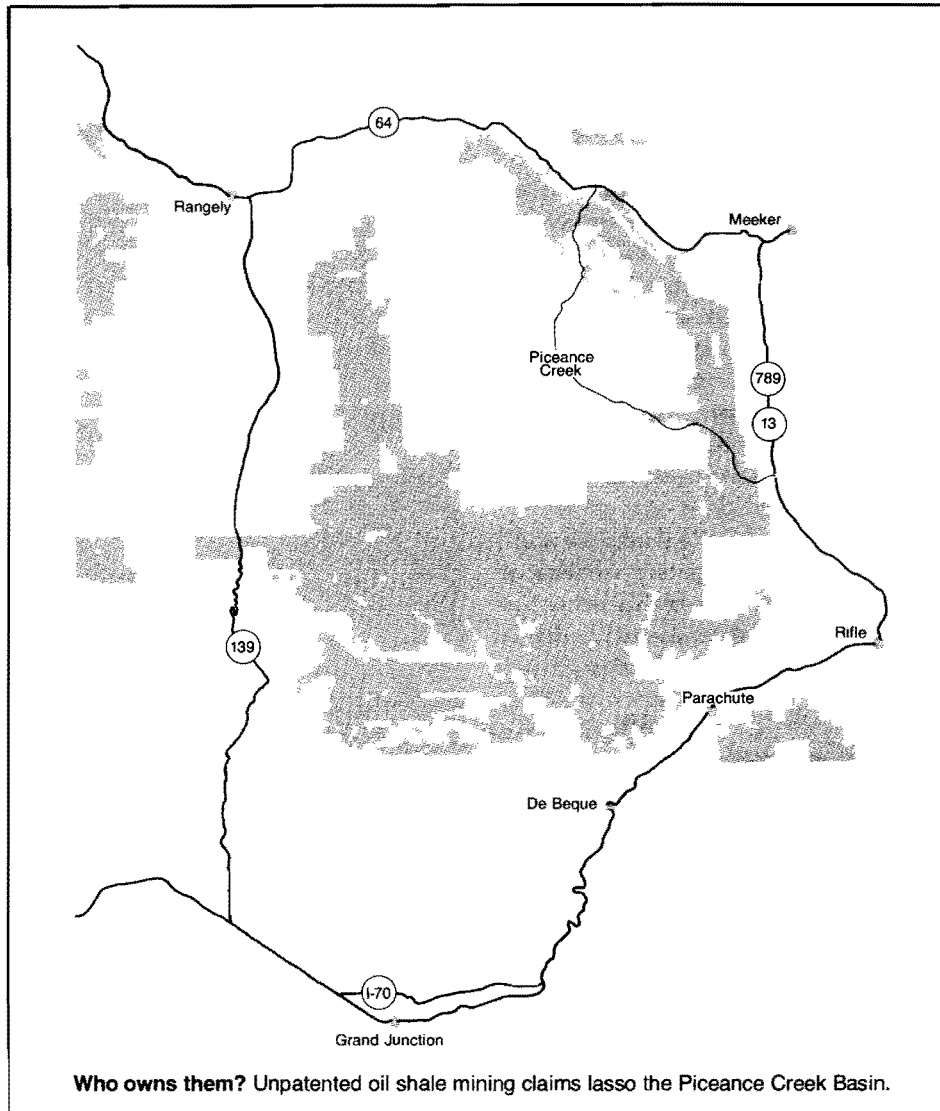
Today the Savages have part interest in 2,500 acres of patented claims. They also hold an interest in some 30,000 acres of unpatented claims—unpatented because the Interior Dept. has yet to recognize the validity of those claims. And therein lies the foundation of an ongoing legal battle.

When they first began the paperwork for patents, the Savages' son, John Jr., was in grade school and often accompanied his parents into the field. Today the Savages, who live in Rifle, CO, are still venturing into the field to spend 3 or 4 months a year performing assessment work. And John Savage, Jr., now a graduate of the University of Denver School of Law, is arguing cases his parents initiated more than 2 decades ago.

A legal Rubik's Cube

He is only one of many lawyers arguing pro or con the issue of shale patents, because the granting of these patents has been turned into a puzzle to rival a hundred-foot Rubik's Cube. The Savage claims are among the estimated 300,000-400,000 acres of unpatented oil shale mining claims in Colorado, Utah and Wyoming. Most of these claims are held by oil companies.

The senior Savage says that he has seen Interior Dept. rules on oil shale change again and again, but, "The law hasn't." Noting that Interior patented hundreds of claims from 1935-1960, Savage predicts his



claims will eventually be awarded patents.

Also predicting victory for claimants of unpatented oil shale claims is Michael March, professor of public affairs at the University of Colorado at Denver, who holds a doctorate degree in political economy and government from Harvard University, and was a senior civil servant in the U.S. Bureau of the Budget and Office of Management and Budget for 28 years. But March and his younger brother Fred make their prediction reluctantly because they are long-time opponents of such claims. They have fought the granting of oil shale patents since the late 1950s when Fred, a junior attorney in the Denver Solicitor's Office, was researching the legal validity of the claims.

Michael March still charges that Interior's challenge to those claims is "feckless, lackadaisical and inadequate," and he predicts the government will "give away"—for \$2.50 an acre (the charge for patented lands)—thousands of acres "of incalculable value in the future." He also questions the validity of the current claims because they are being made on the basis of claims that were filed in 1920 or earlier by people now mostly long deceased.

To the assertion that such an outcome would be a windfall to oil shale developers, attorney Don Sherwood answers, "Nonsense." Sherwood, of the Denver firm Sherman & Howard, which represents Union Oil Co. of California in these cases, counters that the attempt to deny those claims could be called "legal theft."

Sherwood maintains, "The government is not in the mining business." He says mining laws historically told the prospector, "You guys take the risk (that oil shale will be profitable). If you do, we'll reward you with title." But, he continues, "About the time it looks like they (the claimants) are going to be successful, the government wants it back."

Two key issues argued

Hundreds of cases have been argued in the courts, and a library's worth of briefs have laid out issues of "estoppel," "laches," "void" versus "voidable" claims, and other finely tuned legal matters. Two benchmark cases, known as *TOSCO* and

Shell, have reached the Supreme Court. Yet even these cases have not finally settled the underlying issue, "Are these claims valid?"

While complex, these cases do boil down to a few essentials. In the *TOSCO* case (formally *Hickel vs. TOSCO*), the 1970 ruling focused on assessment work required to maintain a claim. In *Shell (Andrus vs. Shell Oil Co.)*, the Supreme Court ruled in 1980 that oil shale was indeed a "valuable mineral deposit" and could be patented under the 1872 Mining Act. However, a few more details can help clarify the legalities involved.

TOSCO: The *TOSCO* case started with application for patents from Union Oil Co. of California, *Tosco* and others. The Supreme Court ruled these claims were valid only if they were maintained by "substantial compliance with the assessment work requirements" of the law. But, more

startling to the claimants, the High Court ruled that the Interior Dept. "had, and has, subject-matter jurisdiction over contests involving the performance of assessment work."

Sherwood says, "Nobody, not even the government, understood that to be the law." While assessment work had always been required, it was solely for the purpose of maintaining one's claim against a rival claimant—a matter the government had previously left to private parties, he says. He adds that assessment work was relevant to the government only to prove the \$500 worth of work necessary for patenting. Even if a claimant failed to perform work for a few years, he could still maintain his claim if he resumed working it before a rival intervened. From 1935-1960, Interior granted patents even though assessment work hadn't been performed every year.

A Tale of Legal Switchbacks

Interior Dept. action on oil shale claims has zigzagged like switchbacks on a steep mountain road in shale country. From the 1920s to the early 1930s, the department contested hundreds of such claims on the basis of failure to perform annual assessment work (labor on the claims), and hundreds of these claims were declared invalid (including claims now involved in the *TOSCO* and other cases described in this article).

After Supreme Court decisions in 1930 and 1935 ruled that the government could not invalidate oil shale claims for failure to perform assessment work, the department granted thousands of patents (deeds to the land). From 1935-1960 nearly 350,000 acres were patented. In 1961, Interior reassessed the situation and decided to cease patenting. No shale patents have been granted since.

The history of these claims is more convoluted than a family feud—involving claims with such romantic names as the *Girls Group*, *Jackpot*, *Liberty Bell* and *Atlas*. They trace their legal origin to the General Mining Law of 1872, which allows prospectors to locate and patent certain minerals on public domain lands. The law requires that "not less than \$100 worth of labor shall be performed or improvements made during each year." This is the assessment-work requirement. In 1897 Congress decided oil was such a min-

eral (called a "locatable" mineral) under the 1872 law; later, oil shale deposits of the Green River Formation were also held to be locatable minerals. And from 1916-1920, oil shale prospectors hit the hills.

In 1920 Congress sealed the public oil shale lands from further claims, because the Mineral Leasing Act of 1920 withdrew oil shale as a locatable mineral. Henceforth oil shale prospectors on public domain lands would be required to lease the land. They could not seek title to it. Unless . . . unless they had a valid claim in 1920 and it was thereafter validly maintained. Interior granted patents on the old claims until 1960.

It wasn't until 1974 that the first oil shale lands were leased by the government. Oil companies bid up to \$40,000 an acre, and the leaseholders must also pay royalties to the federal government. Meanwhile, the legal issues on unpatented mining claims remain unsettled. Holders of these claims could proceed to mine oil shale on these lands. In fact, says an Interior Dept. attorney, one of the largest gold mines in the country never has gone to patent. But, points out a *Tosco* landman, Lila Boyle, "In the case of oil shale, it wouldn't be prudent to proceed with the expensive and complex development of the resource with less than clear mineral title. The mining claimant's 'possessory interest' is entirely too fragile." □

The 1970 TOSCO case led to further litigation quarrelling over Interior's interpretation of "substantial compliance." This litigation wound its way up and down the legal ladder—from the Federal District Court and 10th Circuit Court of Appeals to the U.S. Supreme Court, which refused to hear the case. In 1975, the Court of Appeals "threw up its hands," in the words of one attorney, and called for expedited consideration of all possible obstacles to patenting. In accordance with court directives the Interior Dept. initiated new contests involving all issues. After administrative proceedings on these contests, they were again appealed to the District Court. But in this round of cases, known as *United States v. Bohme*, the parties agreed to delay consideration of other issues that were already being argued in the *Shell* case.

After the decision in the *Shell* case, the Interior Dept. interpreted *Shell* as it applied to the facts of *Bohme*, which became known as *Bohme II*, in a decision favoring the government. Since February of 1981 this decision has awaited review by Federal District Court Judge Sherman Finesilver.

Shell: The other major case—*Shell*—involved six oil shale mining claims for which patents were filed in 1958 and 1960. The case related to an earlier Interior Dept. decision that oil shale is a "prospectively valuable" mineral under the Mining Law of 1872, and that claimants need not prove they have discovered a mineral that is currently profitable—a reassuring decision for claimants since experimental oil shale operations to date have not been demonstrated to be profitable. In *Shell*, the Supreme Court reconfirmed government's prior rule on prospective value. But the U.S. Bureau of Land Management (BLM) Colorado State Director then raised the issue of examining the *Shell* claims for compliance with the assessment work requirements prescribed by the TOSCO case, so no patents have been granted to the *Shell* claims.

And back in District Court...

Completing the circle, in the *Bohme II* case, District Court Judge Finesilver is to examine the issue of whether those claims meet the discovery requirements of the *Shell* case as well as the assessment work requirements of TOSCO. According to the



John W. Savage and John W. Savage, Jr., inspecting road work done on some claims in the late 1950s.

claimants, the Supreme Court in *Shell* affirmed the rule of *Freeman v. Summers*, which validated oil shale claim discoveries if the oil shale was found on or near the surface, and the prospector could "with assurance follow the formation through the lean to the richer beds." The government has interpreted *Shell* to mean the discovery must be made in the Parachute Creek Member of the Green River Formation. Since some of the claims with outcrops of kerogen-bearing marlstone have no outcrop from the Parachute Creek Member, the claimants are contesting that interpretation. The issue is also complicated by the fact that the definition of the Green River Formation has changed since the 1920s.

Where will this spiral of legal battles end? Several attorneys have suggested that once *Bohme II* is decided in District Court, the grounds on which claims should be patented will indeed be laid out, and Interior will know the case-honed guidelines for issuing patents. And recently in July, Administrative Law Judge John Rampton issued a decision in yet another group of claims, known as the *Weber* contest. That

decision is favorable to oil shale claimants, but has been appealed.

Is a settlement possible? One attorney in the Interior Dept. says no, not likely. "I've been working on it since 1967," he adds.

Another lawyer, in private practice, agrees. And he suggests that the government has had little incentive for settlement during the past decade, since the court decisions have not addressed the detailed issues of patenting, and since the administrative contest decisions generally have been favorable to the government. He notes, however, that the situation was totally reversed in the recent administrative decision of the *Weber* case, which rejected the position the Interior Dept. has held since 1960. Nevertheless, this lawyer believes that only after federal court action on all issues, will the department renew patenting in accordance with the procedure followed from 1920 until the 1960s.

Many oil shale claimants are, like Savage, confident of an ultimate legal victory—someday. Savage looks back on his lengthy legal battle, saying only, "If it had been easy, someone would have done it before." □

Parachute and Rifle— Holding Their Own

By Heather H. McHugh

As if to dispel rumors to the contrary, Bobbie Wambolt, a Parachute, CO, native, glances around her comfortable living room a few blocks from the town's main street and states, "Parachute is a long way from dead. Things have quieted down considerably, but it's not a ghost town."

And if there are ghosts in Parachute these days, they aren't scaring off the heavy trucks that continue to pour through the center of town on U.S. 6. Nor are any ghoulish visitors going to find much room to roam in the town of Rifle, several miles east of Parachute on the Interstate.

For the past several years, Parachute and Rifle have been experiencing a boom because of oil shale development; however, in late 1981 several area projects began reducing activities. Then, last May, when Exxon Company, U.S.A. mothballed the nearby Colony Shale Oil Project (affecting approximately 2,100 workers), many claimed a bust would overtake the two towns. But the bust has yet to materialize. Union Oil of California's shale project is proceeding on schedule, and while the towns may be relatively quiet compared with the frenetic pace of a year ago, residents say there's no need to call in the mortician.

One reason could be because much of the West's mining history can be told in two words—boom and bust. For those who have lived that history, the bust is as familiar as the boom. That's why, since the 1970s,

communities throughout shale country, including Rifle and Parachute, have been making sure that neither boom nor bust would overwhelm them again.

"Manageable growth" has been an often-used term as community leaders worked with company representatives, state officials and private developers to cope with the ups and downs of energy development. And the same guarded optimism that guided the pragmatic community response to increasing oil shale development a few years ago, now guides the efforts of local leaders as they cope with the current shale industry slowdown.

Parachute proceeds with business as usual

In the spring of 1981, SHALE COUNTRY talked with Floyd McDaniel, school-board president and mayor of Parachute. Elected by his fellow townspeople to oversee the town's growth, McDaniel was an exceptionally busy man. During the day he could be found tending the Valley Store on Main St. and in the evenings at town council and school-board meetings that often stretched long into the night. His attitude then about the oil shale industry in general and its effects on Parachute in particular was optimistic, yet tinged with the caution of experience. "If oil shale pulls out," he said, "we can live with what we've got."

Today McDaniel is still mayor and still a busy man, running his store and working

with town and company officials to manage Parachute's adjustment to the Colony closing. And he is basically satisfied with what the town has got.

"If we were back before the time when both Union and the Colony Project came in, everybody would be thrilled to have one major project here. We still have Union, which would have been a big boost all by itself," McDaniel says. And Wambolt adds, "We came out with a lot of new things that we couldn't have had otherwise."

In fact, Parachute has made a number of capital improvements around town during the past couple of years. The newest additions include a town hall, a park and, in conjunction with Battlement Mesa—Colony's planned community just across the Colorado River from Parachute—new elementary and middle schools.

But Parachute made those improvements without building up a major debt of its own. Instead it assembled money from a variety of sources, including grants from Union and Colony, the state's Energy Impact Fund and some money from the Oil Shale Trust Fund (Colorado's share of the money paid for the federally leased shale tracts). "Parachute didn't go into debt deeply," says Wambolt. "People would ask us why we didn't and we just said 'No,' because we've seen pullouts before."

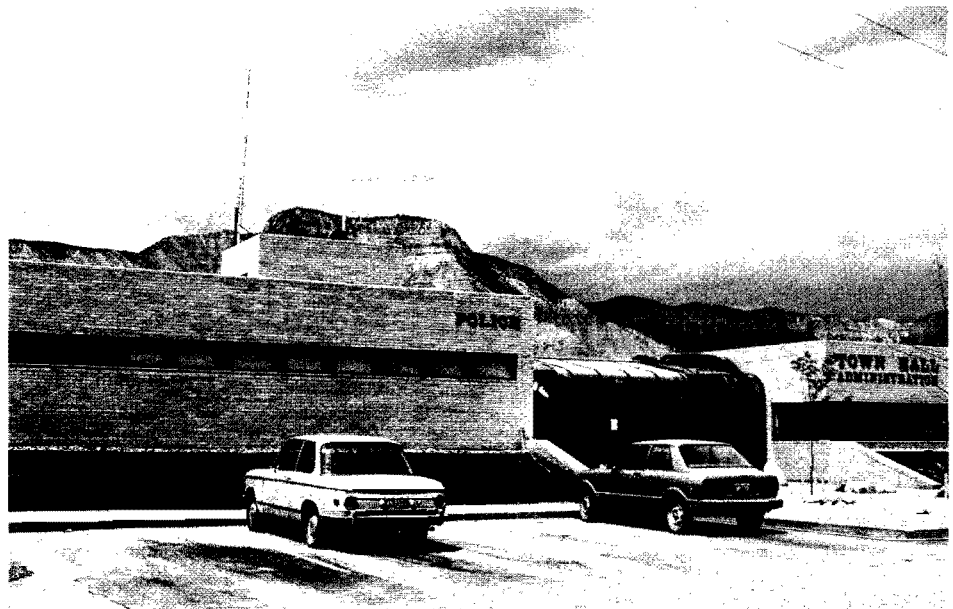
Efforts are now underway to finance a new fire station and find land for a lighted baseball field; a contract has recently been

awarded to pave the town's streets. At an estimated cost of \$1.5-\$1.6 million, the street paving program will include curbs and gutters, sidewalks, an irrigation system and storm drains. "It's a fairly comprehensive system," explains Freedman, "not just paving the streets."

Typically, the town has acquired financing for the project from several sources, including monies from the Oil Shale Trust Fund and the Energy Impact Fund. In this case, though, Parachute will be chipping in a substantial amount of its own money to complete the project.

"The street project is going to make the town look so much better that it will improve people's attitudes and make Parachute an even nicer town," McDaniel notes. Concurring with the mayor, Freedman adds, "We think it will be a great morale booster. It will improve the image of the town 100 percent and increase property values overnight."

Apart from the fact that town-council and school-board meetings will no longer stretch late into the night, McDaniel doesn't foresee many changes around Parachute in the coming months. "There are still a lot of people in the area and traffic on the street. The town council is still getting requests for annexation from nearby property owners who appreciate the benefits, such as law enforcement and the water system, that



This town hall is one of Parachute's newest additions.

being a part of the town will make available to them."

Housing, too, continues to be in demand. "Homes are still expensive and hard to find," McDaniel explains. "Some people who are looking for cheaper houses are having trouble." Wambolt reports, "Almost every available house in town is occupied and the trailer spaces are all full. People moved out next door and someone imme-

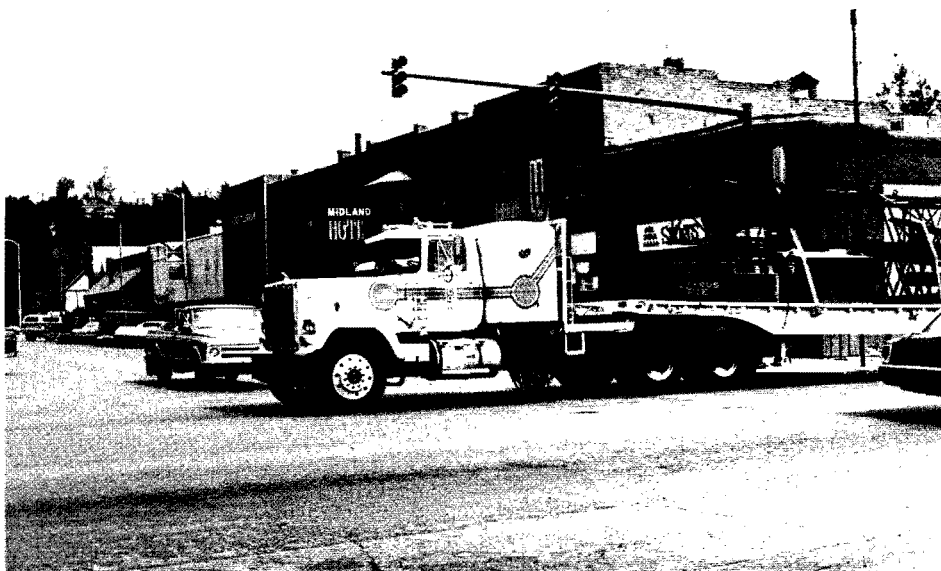
diately moved in even though the rent is terribly high."

But unlike the housing market, prospects for other private businesses are still uncertain, and these people seem to have been the hardest hit by the drop in shale industry activities. "Some private projects in and around Parachute that are well underway have had to slow down and look for new financing," notes McDaniel. "There is a hesitancy by financial institutions to stick their necks out." Wambolt's husband Marvin reports, "Even if their owners want to stay here, these businesses will have to make a profit to survive. It's going to be 3 or 4 months before things settle down. Everybody's waiting to see what will happen."

As for the prospects of his own grocery store, McDaniel is matter-of-fact. "We've had a drop in business at the store, but it hasn't been a big drop—business is still pretty good. Part of it isn't just the shale slowdown, it's that other businesses here are now beginning to offer things that only we had before."

Rifle residents 'hang on tight'

Although the rush of traffic and crush of people have subsided since last spring's peak, Saturday mornings around Rifle still bustle. Cars and trucks flow into central Rifle from the Interstate and then continue



To the casual visitor, downtown Rifle shows few signs of either boom or bust.

north on Railroad Ave. past bake sales and ballgames and on to newer parts of town. Convenience stores and a small shopping center now complement the central shopping area and new homes spill onto the bluffs surrounding Rifle.

Downtown, too, has its share of shoppers, and the meter maid greets many of them by name. For those who have no shopping to do, there is plenty of companionship at the municipal swimming pool. To the casual visitor, Rifle seems victim of neither boom nor bust.

There are, though, a few signs of strain, just as there are in Parachute. Rifle is no longer protected from the declining national economy and now faces many of the same dilemmas that confront communities across the country. There are quite a few "For Sale" signs here, particularly in the newer subdivisions. Many private developments are on hold and many residents are uncertain about the future.

Primarily, there aren't enough jobs, especially since coal-mining activities are also slowing down. Unemployment in Garfield County, which includes Rifle and Parachute, is significantly higher (8.4 percent in June) than it was a year ago (3.8 percent). "It's unfortunate that there isn't a wide variety of job opportunities here," says Richard Lessner, acting city manager of Rifle, "but people are trying to hang on tight."

Lessner notes that "The Colony situation, to this point, has not had as much effect on the town as we thought it would. Rifle was very fortunate in that it received most of its money for improvements in the form of grants, primarily from the Oil Shale Trust Fund and the Mineral Severance Tax Fund. We don't have a great deal of indebtedness and haven't postponed any pending projects. Water and sewer systems to handle 10,000 to 12,000 people were almost complete when the Colony announcement was made, and a \$1-million street improvement program is still going ahead as scheduled."

As in Parachute, private developments have felt the effect of the shale industry slowdown more than municipal projects. Lessner says, "My office is seeing many more requests for extension of timetables for meeting site-improvement requirements. The poor national situation just aggravates the problem." Existing busi-

nesses, though, seem to be doing all right. And Lessner notes, "Sales-tax receipts, which provide most of the city's revenue, held steady in May when compared to April." As for the housing market, "The situation here is quite good compared to the months immediately preceding the Colony announcement, when the market was extremely tight," says Lessner. "There is more housing available now."

Although he estimates that Rifle isn't growing at all and despite the "For Sale" signs, Lessner doesn't feel the town will soon be deserted. "We haven't had much out-migration yet," he reports, "although we are planning for that possibility. Most people here really like the area and would like to stay. Rifle had a fairly settled population to begin with since the newcomers who settled in Rifle, rather than closer to one of the construction projects, were likely to want to remain in the area permanently."

In the wake of the after-effects

As a long-time social worker and coordinator of REACHOUT, a program that helps newcomers adjust to life in Parachute, Battlement Mesa and Rifle, Joyce Illian has observed the effects of the Colony decision with a trained eye. "Almost everybody," she says, "had the ability to handle the change. It was handled maturely. There weren't the riots nor the vandalism some people expected."

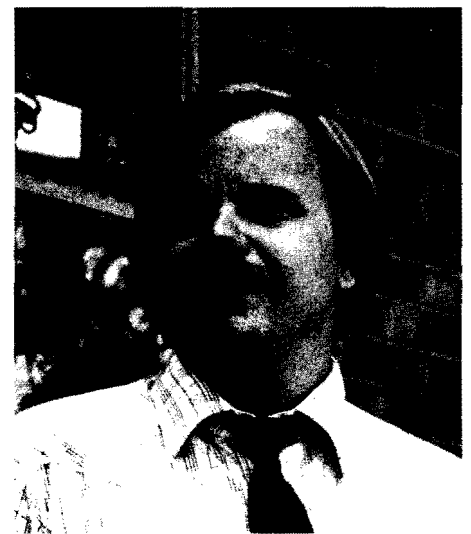
In fact, like seasoned New Yorkers reminiscing about the night of the blackout, Rifle and Parachute residents trade stories about

what they did on the night following the Colony announcement. Wambolt remembers: "Marvin and I decided to go out for dinner but there wasn't any place to eat open in Parachute that night, so we went over to the Red River Saloon in Rifle. When we got there the waitress told us she couldn't serve us wine with dinner because 'they're rioting over in Parachute!' Well, the truth is that it was so quiet in Parachute it was pathetic."

One possible explanation for the subdued reaction is that many people who lost their jobs were construction workers, accustomed to the ups and downs of that industry. Wambolt observes, "Construction



Parachute's mayor,
Floyd McDaniel, in front of
the Valley Store.



"Most people here really like the area and would like to stay," says Richard Lessner, Rifle's acting city manager.

people are used to picking up and moving around. Many of the people who worked for Brown and Root (the prime contractor for the Colony Project) were from Texas, and they returned there immediately."

Illian adds, "The newcomers who were able to respond the best to the situation were people who had a home base elsewhere, a place away from here that they felt they could return to and regroup. That doesn't necessarily mean having a house or a family elsewhere, although it can include those things. Basically, it means having an emotional commitment elsewhere. It's a dualism. You make home where you are, but you also keep a home somewhere else, in the back of your mind."

Illian notes that "The people who didn't leave right away were usually the ones with kids in school. They waited 2 or 3 weeks until the end of the school year."

"It was sad," says Wambolt. "We have a 16-year-old who had lots of friends in school who had to leave. Those people really liked it here, and I never heard anyone complain about them. They got along well in school and were ready to settle here."

But not all newcomers have left the area. Many of these people, it seems, are trying to make Parachute and Rifle their homes. "There are many people who will stay if they can get work," says Marvin Wambolt. Illian agrees, commenting that not only are many men remaining to search for work, but "We're also finding that women and kids are staying behind while men leave to follow construction jobs. Many are trying to hang on even though it's real tight."

Adapting to a different pace

Long-time residents are also trying to hang on. Mildred Whitt, a Rifle native who now works part-time as a sales clerk at the Golden Thimble Fabric Store, hasn't been much affected by the area's recent economic downturn. She worries, though, about her two sons who are now out of work with young families to support. "I don't think the older people will be affected much by the oil shale slowdown, it's the younger ones who will. But you might as well hang on here, because there's no place to go that's any better."

As the building inspector for western Garfield County, Marvin Wambolt wasn't immediately affected by the Colony announcement. But after current construction phases down in the next couple of months, he, too, may be out of a job. "I have no idea what we'll be doing after current construction ends. We just sort of take one day at a time."

"This is the fifth time we've been through something like this," says his wife. "We've moved away twice because of shutdowns. I don't want to leave again. Before we had to leave because there wasn't any work, but this time we should be able to stay."

"We used to make our living building one house at a time and then selling it, so we could always do that again," she continues. "Marvin used to be the one-man boom in Parachute, building one house a year. He's a jack of all trades, so we'll make it."

The "we'll make it" feeling seems to be a prevalent one. "Although it took a while for the initial shock to wear off," says Illian, "by mid-June people were beginning to feel more positive and now they are working to get involved again. Their attitude is 'Well,

life goes on. I've been depressed long enough and I'm ready now to face the future.' "

And in fact, the present slowdown has produced at least a few not unwelcome side effects. "Women here are saying the pace is now much nicer," Illian notes. "Their husbands are working shorter hours and taking vacations. The Colony announcement burst the bubble that shielded this area from the rest of the economy. If everything had gone as planned this summer we might have felt overwhelmed. Things seem much more manageable this way."

"Many long-time residents are feeling that they have more say once again," she continues. "While the boom was on full-blast, they said that progress was fine, but they seem somewhat relieved now that the pace has slowed down."

Thus, the dust is settling on quieter—but still lively—streets of Parachute and Rifle, giving residents a chance to look around and catch their breath. The pace may have slackened for now, but shale country residents have seen this occur many times in the past. And as always, they are expecting the seemingly inevitable "next time." □



The streets of Parachute are quieter than they were a year ago, but residents are adjusting to the slower pace.

A Look At

The Human Service Challenge

When oil shale development is booming it can mean new economic life for the states blessed with this resource. But like most commercial ventures, energy development also brings changes in the communities it touches. Those changes continue even if the boom should suddenly come to a halt.

Until the Colony Shale Oil Project near Parachute closed in May (laying off approximately 2,100 workers), much of the Western Slope of Colorado, particularly Garfield County, was trying to cope with the growth in human service needs associated with boom times. Development meant more jobs. And it also meant a burgeoning population as job hunters and their families sought economic opportunities. This could sometimes add up to communities with too little housing and too few movie theatres, bowling alleys, day-care centers and youth groups to serve the growing population. If left unchecked, the result could be boredom, isolation and loneliness for transplanted workers and their families, which, in turn could lead to increased child abuse, as well as alcohol and drug abuse, while local resources designed to deal with these problems become stretched to the breaking point.

Western Slope counties, though, weren't waiting for a magic cure to save them from the situation. Garfield and Mesa counties had hired human service planners to help anticipate and meet human needs related to economic growth. In Rio Blanco County local government began looking at what it could do in the area of human services.

But as Roger Ludwig, who was hired in September 1981 as Garfield County human resource planner, notes, "The situation has

changed drastically for Garfield County" since he drafted the "Garfield County 1982 Human Service Plan" earlier this year.

"We estimate about 2,500 people (or about 8 percent of the total population of the county) left Garfield County in a 3-week period immediately following the closing," says Ludwig. "Quite a few more probably left when school let out. Most of those leaving were single workers and young families, who were making some of the biggest demands on our human service system.

"This meant some agencies—those dealing with day-care for example—felt a sudden drop in demand for service. At the same time we had two agencies that were just overwhelmed for about 3 weeks. The Job Service Center was inundated with people looking for job applications and the Dept. of Social Services received many requests for emergency financial assistance. Churches and some of the smaller agencies were also contacted by people affected by the closing."

Taking a second look

What all this means, says Ludwig, is that he and the Garfield Human Service Commission are updating human service needs and commitments in the county. But Ludwig also points out the work that had gone into planning enabled the county to better handle the sudden shift in needs.

"What happened is we went through this incredible boom and then an unusual and unbelievable bust—unusual because it came so quickly and unexpectedly—but the coordinating of services between agencies that we had begun and the communication we had set up, helped us work together

to handle the changing situation," he notes. "What planning is about is learning to work together and develop a team, which is ready to deal with changing circumstances."

In order to deal with the new situation, one of the first things Ludwig and the commission did was to review where money was going. "We had allocated about one-half of our funds and we still had about \$45,000 in reserve (uncommitted)," comments Ludwig. "We reviewed all the applications again and the Human Service Commission decided to recommend that the county commissioners go ahead and allocate the money as originally decided." Ludwig adds that the county still has to make a decision on this recommendation.

The next step for Ludwig was to take a look at the county's new population figures. Planning for human service needs is based in part on population figures, and in Garfield County these figures had been dramatically affected by energy development—in particular oil shale—when Ludwig took the initial step earlier this year of drafting the "Garfield County 1982 Human Service Plan."

According to the report, Garfield experienced a 25-percent population increase in 1981 because of oil shale development, and the estimated increase for 1982 was between 20 and 30 percent. Since the study's near-term (late 1982) and long-term recommendations were based on those figures, Ludwig is in the process of doing another needs assessment based on the county's current population projections. This update is expected to be completed in time to be presented to the county commissioners at the annual budget session this fall.

Much of the information in the original report is still valid, however, and the methods used to collect data and assess information are typical of those that will be used in the future in Garfield, as well as those methods being used in Mesa County.

"What we did was look at what needs—what social problems—exist, and then we looked at how these were being met by county organizations and agencies, or how they could be met," says Ludwig.

In order to do that Ludwig gathered information from six sources:

- a November 1981 survey of 440 county residents;
- professional people providing human services, such as police officers, doctors, nurses, counselors and social workers;
- statistics, such as changes in the crime rate, drunken-driving arrests and suicide and divorcerates;
- human service agencies, to determine which ones were being unused or over-used, and what demands were unmet because of a lack of established agencies;
- indicators of "what is normal"; for example, what is the average number of doctors or mental health personnel in any county;
- population projections for the next 10 years, as well as regional plans and state goals for the Western Slope.

A shift in emphasis

While some of the needs identified by the report have changed, many still exist, sometimes with a slightly different emphasis. For example, Ludwig's findings show one of the county's most immediate needs was to find more qualified foster homes for babies and teenagers, who were abused, neglected or abandoned.

"But many of those who left were young families," notes Ludwig. "The need for infant foster care is no longer as pressing, but finding adolescent foster care remains a problem. We also find alcohol treatment services are still much needed."

Another change for the county has been in reported abuse cases. "Abuse reports dropped dramatically in May and the June trend is also down," notes Ludwig. Garfield County had seen a dramatic increase in the number of abuse reports, which Ludwig felt was directly related to changes brought about by the growing population.

"What we saw was an increase in the number of reports to the authorities, not necessarily an increase in the amount of abuse," Ludwig emphasizes. "It used to be that neighbors would talk with relatives about a case of child abuse. And since everyone knew everyone else, you knew who a kid's relatives were. However, this informal system, which worked until the population started growing, then was no longer meeting people's needs. These incidents were reported to the authorities,

because people didn't know who the relatives were."

The drop in abuse case reports shows how dramatically requests for help for human services can shift with changes in the fortunes of oil shale or any energy resource development, but Ludwig adds the groundwork laid by planning efforts should help the county adjust its resources accordingly.

Funding—sources and recipients

As for funding human services in Garfield County, expected revenues for 1983 took a sudden dip when several companies notified the county that their block grants had



Roger Ludwig, Garfield County human resource planner, says planning is "... learning to work together and develop a team, which is ready to deal with changing circumstances."

been discontinued for next year. By contrast, in 1982 human services received \$71,900 from the shale companies' block grants, as well as \$150,000 from the Colorado Div. of Impact Assistance, Dept. of Local Affairs, and \$85,000 from the county coffers. Stan Broome, the county manager, estimates the county could end up with a \$500,000 deficit in 1983 if cuts are not made in planning, human services and building-permit staff members, as well as other county offices that now have a reduced work load due to the changed situation at Colony.

As a result of the funding decrease, Lud-

wig will complete his 1982 contract with Garfield County, but beginning in 1983 the county will no longer have a full-time human service planner on staff. Broome points out that the administration of funds that have already been approved by the county commissioners for human service agencies will be handled by the county's Administrative Services office. In 1984 the county commissioners will have the opportunity to review the situation to determine if funds and county needs indicate a full-time human service planner is again possible and necessary.

While Garfield County has been coping with rather dramatic shifts in human service needs, Mesa and Rio Blanco counties are concentrating on getting the planning "machinery" in place to handle similar energy development demands, and—if need be—changes in these demands due to a gearing up or a slowing down of oil shale development.

Using funds from the Div. of Impact Assistance, Mesa County recently hired human services planner Rex Critchfield, who says the Colony announcement had little immediate impact on his area. Using a process similar to Garfield County's to assess needs, his first priority remains the county budget appropriations session coming up this September. "We are providing information for the commissioners on where general fund monies can be allocated (for human services) for the upcoming fiscal year," he says. By 1983 Critchfield hopes to identify and prioritize county needs and develop strategies to deal with problems and demands.

In Rio Blanco County action is being initiated at the local level. The town of Rangely has established a "human resources challenge fund" of \$80,000, which will pay for projects initiated by local organizations or individuals and approved by town officials. "The intent," says town manager Don Peach, "is to make the process wide-open and emphasize citizen participation and innovative ideas." The result, adds Peach, is that Rangely "will remain a good place to live."

Thanks to the efforts of human service planners and agencies, the same can be said for the entire Western Slope as the future of oil shale changes. *N.L.S.* □

"The House That Jack Built" is more than a children's story to 18 families in the town of Fruita, CO, 11 miles from Grand Junction near the Colorado National Monument. Thanks to their own hard work, the support of the Colorado Rural Housing Development Corp. (CRHDC) and financing from the U.S. Farmers Home Admin. (FmHA), these families, who might otherwise never have been able to afford their own homes, are settling into houses they built themselves for a fraction of the cost of comparable houses in Mesa County. The program's popularity has not been dampened by the recent oil shale industry slowdown, and program directors hope similar housing projects may be funded for other Western Slope areas.

Carpentry cooperation

The program was initiated by CRHDC, a non-profit, private corporation founded in 1971. As an advocate for the creation of low-income housing throughout rural Colorado, CRHDC has helped more than 300 families across the state become homeowners through self-help programs like the one in Fruita.

The essence of these programs is cooperation. With CRHDC's help, families organize themselves into associations and work on the houses as a group. Through a process often referred to as "sweat equity," future homeowners cut costs by doing much of the construction themselves. This means that group members share responsibility for completing work on each phase of construction for each home. For example, work is generally finished on one house at a time for each stage, until all the buildings are ready to begin the next phase of construction.

To participate in the program, individual families apply for low-interest mortgage financing from the FmHA's 502 Home Loan Program. Although competition for the funds is stiff, families who qualify are then able to use this money to build modest single-family homes. Throughout the entire financing and construction program, CRHDC assists the homeowners' group by securing land and materials, providing training in construction skills and, in general, managing the overall construction process. Subcontractors are hired for the

most technical work, including framing and installation of plumbing and electrical systems.

Building the basic skills

Working under the careful eye of trained CRHDC construction supervisors, families put in insulation, hang sheet rock, paint, stain and seal wood, install fixtures, cabinets and interior trim, hang doors and do landscaping. Although many of the families don't know much about construction at first, they pick it up quickly once work begins. "In fact," Alfred Gold, executive director of the Denver-based CRHDC, notes, "Some of them are so well trained that they become construction supervisors for us."

In addition to providing construction training, CRHDC brings in tax assessors, insurance representatives and interior decorators to help project participants make the transition to the increased responsibilities of homeownership. But, Gold notes, "Once the homes are completed, the families are pretty much on their own. They are respon-

sible for mortgage payments, taxes and other expenses. However, CRHDC does run a professional housing-counseling program, should an individual new homeowner need guidance."

While CRHDC has sponsored many self-help projects throughout the state, a program was not started on the energy-impacted Western Slope until January 1981. As Gold explains, "For the past 4 or 5 years, we've been attempting to set up a self-help program here specifically because energy development has created a tremendous need for housing. As part of a needs assessment of the area completed in 1980, we found that the FmHA had 400 to 500 applications on file from people requesting loans for moderately priced housing."

Fruita was chosen as the site of the organization's first Western Slope construction program because of the demonstrated need in the area and because CRHDC was able to find land available for development there. "Land is quite scarce on the Western Slope, but we were able to secure a parcel in Fruita," says Gold. "Obtaining the land

Real Estate Corner

Hands-On Home Building



A group of self-help homeowners gather at an open house.

gave us more impetus to get the project going.

"After the necessary lead time it took for us to obtain loan approval from Farmers Home, buy land, and establish a management office in Grand Junction, the program proceeded rapidly," Gold notes. In fact, construction on the 18 Fruita homes began in June 1981, and by mid-October the first eight families were ready to move into their new homes. The remaining 10 houses were completed a few months later.

On the average, families contributed more than 700 hours each toward building their homes and saved 30 percent on the cost of conventionally built dwellings. The approximate cost of each of the 1,000-sq.-ft. self-help homes was \$42,000, including land, while comparable conventionally built homes might cost as much as \$57,000 or more.

Future house-warmings

Now that the first 18 homes are completed, CRHDC is looking forward to its next project—a 24-home development also to be located in Mesa County. According to Bill Cordova, Mesa County project director of CRHDC, construction on the first two homes in that project began early this summer and work on three or four more residences started during July. Loan applications were being considered by the FmHA as late as April, but Cordova notes, "We quit taking loan applications 2 or 3 months before then because we felt we shouldn't get people's hopes up. We were overloaded with applications and names of families interested in participating in the project. I'm sorry that we can only build 24 homes."

CRHDC is also looking at land in Palisade and Loma for potential housing and has submitted an application to the FmHA to begin similar self-help projects in Montrose and Delta counties. The government is currently reviewing that application, and CRHDC is hopeful that it will be able to extend the program to other Western Slope areas as well. CRHDC is also working with local lending institutions in an effort to undertake a privately financed self-help homeownership program.

So far the oil shale industry slowdown has not affected CRHDC's self-help pro-

gram. According to Cordova, "We're still getting plenty of applications from potential homeowners. One difference, though, is that now we're also getting a lot of applications from construction contractors who want to work for us."

Neither has CRHDC's search for land become any easier. "Honestly," says Cordova, "it seems harder to find land now than it was before the slowdown. It looks like people are holding onto their land for the time being, so we're having a hard time finding anything. If we could find a parcel of land for 12 homes that FmHA would approve, we'd jump on it."

In the meantime, the 18 families who participated in the first program are enjoying the fruits of their labor. Ronnie V. and Dorothy Serrano and their 2-year-old son moved into their new home last fall. Western Slope

native, the young couple heard about the self-help program from a friend. "The hardest thing we did," Dorothy Serrano remembers, "was roofing the eight homes in August. The heat was terrible. But the work we did was well worth it. It's wonderful to have a house. And another good thing is that instead of moving in and not knowing anybody, we got to know all our neighbors beforehand. That helps a lot."

There are, she explains, special benefits to building your own home. For one thing, "Our energy bill has been really low compared to other people's because we have such great insulation." And, since she is so familiar with how the house was constructed, she also knows how to maintain it. "I know where every little pipe, every little thing is at. And it makes you so proud to realize you did it yourself." *H.H.Mc.* □

Many self-help families worked together to install solar-heating systems on their homes.



Self-help homes cost an average of 30-percent less than comparable conventionally built homes.

Maintaining Land for Wildlife—and People

By Nancy L. Sullivan



This river otter is one of 87 different mammals that inhabit Colorado's northwest corner.

The wide meadows, valleys and flattops of Colorado's Piceance Basin have abounded in wildlife for centuries. Mountain lions, eagles, peregrine falcons, black bears, elk, coyotes, bobcats, reptiles and amphibians, and about 30,000 mule deer, probably the country's largest migratory herd, range over 1,300 sq. mi. in the heart of Colorado's northwestern corner.

It is also an area rich in minerals—coal, oil, gas and oil shale. In fact, it has been estimated that the oil shale reserves of the Piceance Basin could rival the Mideast oil fields in potential resources. For an energy-hungry country, caught in the spiral of rising energy costs, recovering those resources has become an important issue—as important as maintaining the land for the wildlife that inhabit it.

However, the problems of protecting wildlife habitat are complex, and the potential for conflict with energy development is apparent. To help solve these problems, wildlife specialists are focusing today on how to consolidate the results of all the environmental monitoring now being done by industry and government so that conserving wildlife habitats can be coordinated across the northwest section of the state.

The need for such coordination grew out of wildlife specialists' perceptions of the many considerations that must be dealt with in maintaining wildlife habitats. For example, permanent damage to wildlife habitats might occur before anyone became aware

of what was happening, since the changes would be gradual rather than dramatic and sudden. Furthermore, there are limitations on reclaiming or improving habitat areas, because of soil conditions, weather and other natural factors. Then, too, impacts result not only from actual energy projects but also from more people brought by more jobs.

"Certainly, a potential for conflict exists between wildlife survival and energy development," says Colorado Div. of Wildlife biologist Jim Morris, "because *anytime* you alter animal habitat—for any reason—you eliminate a vital part of the ecosystem, whether it's spawning grounds (for fish) or winter range (for deer)."

Until this year, it appeared as if hundreds of acres of wildlife habitat would be impacted in the near future by various aspects of oil shale development: powerline and pipeline rights-of-way, growing towns and increasing recreational demands. By the beginning of the year, though, several projects began winding down activities. And in May, a major project, Colony, announced that it was closing down operations—at least temporarily.

So, although the anticipated oil shale boom has slowed once again, wildlife specialists now have more time to plan for the impacts of energy development that most observers feel is sure to continue.

"With the Colony pull-out, we have more time to think about wildlife preserva-

tion," says Morris. "And we have to think about it from several aspects. For example, we know it's possible to design projects to protect wildlife and extract minerals. At the same time, we believe the biggest impact from development will be in the numbers of people coming to the Western Slope and the increasing demands for houses, roads and recreation.

"If you look at what happens to the land, you can see that if you put a house or a road on it, it is a direct loss. But, it has been said by some reclamation specialists that if you strip mine you may have the potential to reclaim the land to a state even better than it was originally.

"For example, some coal companies," he continues, "are doing a really good job of restoring ranges, especially since not all ranges are in top condition to begin with. This is what we're (Div. of Wildlife) working for in Colorado with these companies—to improve ranges and habitats. In some cases, this will be done on areas adjacent to a project rather than on the project site itself."

Jack Clark, environmental coordinator for Rio Blanco Oil Shale Co. (federal lease tract C-a) agrees that the real problem for wildlife is going to be the inevitable population increases that accompany energy development. "Industry knows a lot about reclamation," he says. "At Rio Blanco, for example, we've been experimenting with revegetation since 1976—how to reclaim and how

to make a good habitat. Some companies have been experimenting with reclamation for more than a decade. What we don't know is what is going to be the result of increasing the population of northwestern Colorado by three or four times its present size."

Changes evolve subtly

It is this unknown impact that concerns wildlife experts today, and makes them conscious of the need for a central, coordinating body to look at the changes in wildlife on a regional scale rather than acre by acre. Perry Olson, director of the Div. of Wildlife's northwestern region, points out that the relationship between wildlife and energy development is complicated by the fact that there is a "threshold" point at which changes to the habitat become overwhelming to the wildlife, and the "wildlife population drops drastically and quickly." If industry and decision-makers are not sensitive to these "thresholds," then it is easy to assume, because there are no dramatic, observable changes in wildlife numbers, that development is having no important impact.

"People won't realize what's happening until it's too late," stresses Olson, "because the changes will be so subtle at first. Furthermore, appearances can be deceiving, and what looks like a lot of animals may really be a decrease. For example, we had a very severe winter in 1978-1979, and it reduced the mule deer population here. (Ten years ago the herd numbered 36,000 in contrast with the estimated 25,000 to



One of the largest herds of mule deer in the U.S. today ranges in the Piceance Basin.

30,000 today.) Yet, people coming in here from the East or who aren't familiar with the area are amazed at the number of deer. Yes, there are a lot, but not compared to the numbers a few years ago." Olson adds, "We don't know what the threshold is for all the variety of wildlife here because it depends on weather, on disease, on recreational use of the land area, as well as on development.

"And there's another consideration," emphasizes Olson. "Should everyone be expected to preserve wildlife or just those people who contribute to that 'threshold' mark? Common sense tells you that everyone who does an increment of damage should have to contribute to alleviate their impacts."

Circumventing thresholds

Who should contribute to wildlife preservation and at what point are just two parts of the question of how to maintain habitats. Any solution must also consider the variety of wildlife in the area and whether any species are endangered or protected. For example, northwestern Colorado has 87 different mammals, 305 varieties of birds, 52 different types of reptiles and amphibians and 43 fish species, as well as endangered bald eagles and Colorado squawfish. Endangered whooping cranes also migrate through the area.

"What to do" can be further complicated by natural limits on the numbers of wildlife any area of land can support and by the

question of what the land should be reclaimed for. "You can't necessarily improve every habitat area," points out Morris, "because each piece of ground can only carry so many animals and if you force more on it they are going to die. That's something an administrator or an engineer might not understand, but when these companies hire biologists it really helps us because these kinds of considerations are part of a biologist's training."

Morris adds that natural soil conditions and weather also influence what can be done to an area. "Some parts of the Western Slope are extremely difficult to reclaim. It depends on the amount and quality of soils, on the amount of precipitation, and again on what you are trying to reclaim the land for—deer range, or whatever."

While reclamation is a part of the "what to do" answer, it is only one aspect of a variety of measures that may be taken to maintain wildlife habitat. Specialists, in fact, put reclamation into a broader category called "mitigation."

"We define mitigation," says Dr. Robert Cook, head of the Dept. of Fishery and Wildlife Biology at Colorado State University, "as what you can substitute for what is being destroyed. If you destroy a portion of a deer range, what is it you can do in another area to compensate?"

"An example of mitigation would be recognizing that while a company might be using a certain area in developing a mining project, around it there might be a buffer



The red-breasted nuthatch is one of 305 varieties of birds in northwest Colorado.

zone that can hold deer until the project is reclaimed or whatever. The idea is to find 'what is best' for development and for wildlife. Most companies are very willing to do whatever is recommended to them as best for wildlife."

Rio Blanco's Clark agrees. Like the activities being done by many other oil shale companies on the Western Slope, he points out that at Rio Blanco, "We have always monitored important wildlife species based on the advice of the Div. of Wildlife, the Oil Shale Office of the U.S. Geological Survey and the U.S. Bureau of Land Management (BLM). We can and do look for population changes, but when it comes to *doing* something about the changes it becomes more difficult."

A unifying force

It was in considering the question of "what to do," of how to handle the issues of mitigation, that the need emerged for a coordinating hand, like that offered by the Northwest Colorado Wildlife Consortium. Created in June 1981 through the efforts of the Div. of Wildlife with funding help from the U.S. Bureau of Land Management the aim of the eight-member consortium is during its first phase to collect all the available data on wildlife from industry, government and university environmental studies,

and then in the second phase to develop a model for interpreting this information and making it useful to decision-makers in government and industry.

"What we are trying to develop," says Morris, "is a region-wide planning system for wildlife conservation in cooperation with the universities." (The eight members of the consortium come from the Div. of Wildlife, Colorado State University, the University of Colorado and the University of Northern Colorado.)

"We want to pull together all information available on wildlife, because until now each energy project has looked at its own environmental needs and monitoring programs separately," Morris continues. "But the effects on the environment are cumulative and the knowledge we are gaining at each monitored site is cumulative. What we need is to get a system in place that can coordinate everything we know about what is happening in the northwest region so we can respond quickly to environmental questions."

Morris points out that a central data bank with a system for interpreting how all those data fit together will benefit industry as much as it does the environment and wildlife. "These companies need to understand what the costs will be before they go ahead and start taking mitigation steps. They also



This golden eagle, one of Colorado's protected species, was sighted near Rio Blanco's oil shale project.

need to know exactly what the impacts from their operations may be—that's not something we can tell them right now, but the consortium should help change that. We have a wealth of wildlife in northwestern Colorado, and with proper planning and consideration we can have both wildlife and industrial energy development," emphasizes Morris.

Consortium member Cook adds the need for the coordinating hand of the consortium is also apparent when it comes to dealing with environmental monitoring regulations. The problem, he points out, is not in complying with them in some fashion, but that regulations don't really tell energy companies what essential information they should gather or how to gather it or how to interpret it.

Olson adds that, in fact, the fervor with which regulations are being met and yet the lack of any coordinated environmental monitoring has become a major problem for his office. "The number of applications we get here for data collection is just devastating, and there is no one looking at what's being done totally. It's to everyone's benefit if industry knows that what is being done for wildlife *needs* to be done—and it will also be cheaper in the long-run."

Clark of Rio Blanco agrees that industry could benefit from a central collection and evaluation point on environmental mitigation, and he believes the consortium is one of the best ways to do that. "We need a unifying force like this to pull everything



Rio Blanco employees analyze what kinds of and how much plant life is available for wildlife and livestock forage.

together and come up with some bona fide answers for how mitigation can be most effectively done." But Clark also acknowledges that funding from private industry to help underwrite the consortium will be difficult to come by. "I eagerly commit some of my time to working with the consortium. However, the potential for industry funding will be more positive in the future, along with developments in commercial oil shale."

Who will pick up the tab?

Funding will be a major consideration in the next few months for the consortium. While BLM has provided money for the initial information-gathering effort, the consortium will need more money for the second phase of the project—developing a computer model to interpret the data.

In the second phase, "we expect to develop insights into what might happen if we undertake certain types of activity," comments Cook. "We want to find out what managers and decision-makers need and want (in the way of information) and put that in a form that's easy to use."

Devising such a format, of course, involves many hours of computer work—very expensive hours—and Olson notes, "The Div. of Wildlife cannot be the sole financial supporter of the consortium at that point. We will need financial assistance from state and federal governments and industry." But with the economy reeling under the current recession, funding for any environmental concern becomes more and more difficult to obtain as belt-tightening cuts into national priorities.

"I hope the attitude in this country continues to be that we can afford to protect the

environment," says Morris, "because how we manage wildlife now will affect what happens to the environment for the next two generations."

Olson adds that managing wildlife and developing energy resources doesn't have to be an either-or matter. Being a wildlife advocate does not mean being against energy. "We're not trying to stand in the way of development—we can't stand in the way. But we can provide the best information on how that development can be compatible with the environment.

"What we are trying to do," he emphasizes, "is bring to the attention of those who make decisions—because we are not in the business of policy-making—what things are important relative to wildlife. The consortium is a way of putting together the information we have so intelligent decisions can be made." □



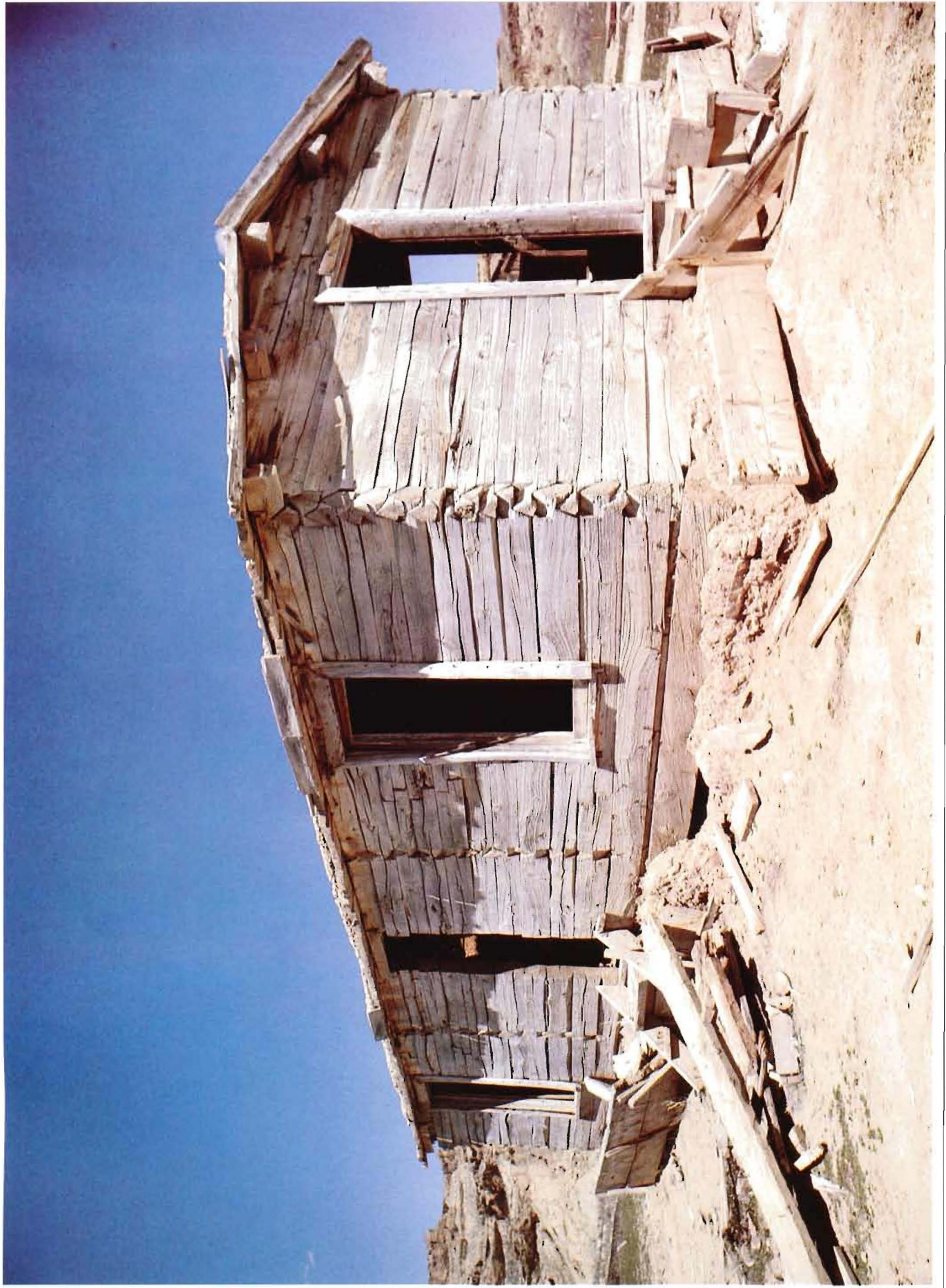
Rio Blanco's Jack Clark demonstrates a technique for marking small mammals for environmental monitoring.



The endangered bald eagle is one of many bird species which nest in the Piceance Basin area.



Peregrine falcons, also an endangered species, can still be found in Colorado.



The historic Ignatio stage stop, near tracts U-a/U-b, before being moved to Bonanza, UT, for preservation.

An aerial photograph of a mountain valley. A winding river flows through the center of the valley, surrounded by green vegetation. The surrounding mountains are rugged and brownish-tan. In the foreground, there is a small settlement or industrial site with several buildings and a parking lot. The overall scene is a mix of natural beauty and human development.

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