

COPLAN: A New Tool for Range Management

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Editor's Note: Anyone looking for a new tool for range management? Well, here is one.

Current economic and energy conservation needs force ranchers to utilize all the information available to them to best manage their operations. Beef production costs in 1982 increased 3 to 4% because of the higher cost of energy, equipment and repairs, taxes, and numerous other items, according to the Extension Service. This increase points out a need for greater production efficiency on our rangelands. One option ranchers are able to use is the Soil Conservation Districts, where they can obtain inventories, such as range sites and condition, stocking rates, and acreages, and then receive choices from which to select the best means of management. To obtain these services, a rancher only needs to sign a cooperator's agreement with the Soil Conservation District, thus entitling him to free assistance. One method which is now offered to Soil Conservation District cooperators is COPLAN. COPLAN, which stands for COMPUTER OPTIMIZATION PLANNING, is one such approach. It allows rapid analysis of large quantities of resource data for a number of management alternatives.

COPLAN is a computer-based planning technique. It was developed by the Colorado State University Range Science Department, the National Science Foundation,¹ the Extension Service, with the cooperation of the Soil Conservation Service and local ranchers. The program was designed to assist ranchers by treating their ranch as a system and considering economic and resource constraints. COPLAN enables management strategies to be developed economically from a least cost allocation of land resources.

The COPLAN process has seven steps:

Step 1. Identify resource management units on the ranch and inventory all feed and land resources.

Step 2. Identify all management alternatives and list those most applicable to each management unit or vegetation type, then define management seasons characteristic of the ranching operation.

Step 3. Identify and inventory all existing and potential kinds of animals, then define the physiological, production, and nutritional needs for maintenance and reproduction of each kind of these animals.

Step 4. Convert and quantify resource and management alternative information and list it on data input forms.

Step 5. Input this information to the COPLAN analysis program. This can be done at Colorado State University or in the field with a portable remote terminal.

Step 6. Review and interpret results and determine if enough information has been obtained to help design a management plan. If not, repeating steps 2 through 6 may be needed. Most of the working time is spent on this step.

Step 7. Combine a set of decisions into a long range resource management plan and implement this plan.

COPLAN has been field tested with 50 ranchers throughout Colorado to determine its ability for a wide variety of ranching operations and geographical locations.

The inventory data are put into the system, and the results are verified during the first set of meetings with the rancher. After the data is verified and the results closely imitate the present ranching operation, then alternatives are considered by the rancher and the planner. During the second set of meetings, computer runs showing the various management alternatives are discussed and compared. At this point the planner should have a good idea of the rancher's goals. A summary of the computer outputs is written and given to the rancher, who then can implement a management plan. The inventories, alternatives, and nutritional requirements allow for trade-offs between different land use alternatives.

By questionnaire, Soil Conservation Service personnel were asked to compare the effectiveness of COPLAN on ranches, with that of present conservation planning techniques. This questionnaire completed in 1977, also supplied data that allowed a comparison with similar questionnaires given to ranchers by Colorado State University in 1976. Following are answers to some of the questions from these questionnaires. They provide some insight into the attitudes and opinions of participating ranchers and SCS personnel regarding COPLAN program.

SCS Personnel Ranchers
(percent)

1. From what you have seen of COPLAN, it could be:

useful	94	97
of no use	6	3

2. If a COPLAN-type program were an available service, would you use it

occasionally or often	75	94
hardly ever or never	25	6

3. Is COPLAN answering questions you may have about improving your ranching operation:

some to most questions	65	87
few questions	35	13

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4. Are you willing to implement actions based on the computer output and consultant recommendations?		
yes	65	88
no	35	12
5. Has COPLAN actually affected any of your ranching practices?		
yes	32	39
no	68	61
(The reason the rancher's and SCS personnel's answers are similar is because SCS people based their answers on what practices the rancher applied.)		
6. Were the forage production figures and animal nutrient figures supplied by SCS and CSU satisfactory?		
added to satisfaction	72	88
detracted from satisfaction	10	9
don't know	18	3
7. Was the reliability of the output of the computer satisfactory?		
added to satisfaction	48	82
detracted from satisfaction	24	6
don't know	28	12
8. Do you feel time spent on COPLAN is:		
Worthwhile	73	97
Waste of time	27	3

This is probably the most significant contribution of COPLAN, really forcing the rancher to do some serious thinking about alternatives.

Since COPLAN has been in the testing stages, there were some changes which needed to be made. More work needs to be done to perfect the input data. In addition, ranchers were generally more enthusiastic about the output, because

many ranchers for the first time used a methodical thought process to evaluate their operations. With an increase in the intensity of their planning, they more readily saw results which had not previously been evident to them, concerning the cost and return data for various management alternatives.

The SCS personnel and ranchers who took the questionnaires have similar attitudes and opinions about COPLAN. The questionnaire results indicate that they believe COPLAN can be a useful tool in evaluating trade-offs between land use alternatives, and in giving ranchers and range managers an appreciation for the nature, extent and importance of their resources.

COPLAN forces researchers to get more accurate and up-to-date information, thus allowing comparison of alternatives as the year progresses. By considering alternatives and planning thoroughly, the rancher can make all his land adequately treated and protected. Another advantage of COPLAN is that it stresses a simulated ranching operation where ranchers can observe exactly where pastures are deficient throughout the year, thus enabling the rancher to know when to rotate or defer grazing. He can change his operation to achieve optimum use of the land, without degrading the soil, vegetation, water, and other resources.

COPLAN can be used as another tool in many ranching operations. COPLAN indicates the current trends in land management. It is another source of data for helping the rancher decide how to improve management of his ranch.

COPLAN is not a magical wand. It cannot do everything. It is limited by the variability of forage production and seasonal plant nutrition. Models and strategies must be tempered by common sense and applied with judgment by ranchers and range managers in the field. ●

RNRF and SAF Negotiate Settlement

Negotiators are pleased to announce a settlement in principle of the dispute between the Renewable Natural Resources Foundation and the Society of American Foresters. The dispute has concerned real estate and development at Wild Acres, the former Grosvenor Estate in Bethesda, Maryland. The negotiators described the agreement as a positive resolution of the dispute that meets the parties' respective needs while providing for constructive future endeavors.

Under the agreement, the estate is dedicated to the development of a renewable natural resources center—a campus-like setting in which professional organizations established to further the cause of renewable natural resources can locate and engage in cooperative works. RNRF, a foundation created to develop the center and associated programs, will receive title to its current building and sufficient land and building rights for continued growth. SAF, the organization of professional foresters, will receive its headquarters building and sufficient land to protect its investment in the property.

The parties further agreed to provisions that will enable the development of the Center beyond that which could be built

on RNRF land, and SAF declared its intention to assist in future Center development. RNRF agreed to means by which SAF will be able to obtain a return on its investment in the land.

All claims of indebtedness of one party against the other were mutually cancelled.

Governing boards for both parties have 30 days to ratify or reject the agreement signed by their respective negotiators.

The negotiators gathered from across the country, coming from Oregon, Colorado, North Carolina, Virginia, West Virginia, and Maryland. They worked with mediators Philip Harter from Washington, D.C. and Verne Huser from Washington State representing The Mediation Institute. The negotiators for RNRF were Hardin Glascock, Chairman of the Board; Clare Hendee, representing the Society for Range Management; Carl Sullivan, representing the American Fisheries Society; William Jolly, representing the American Land Forum; and Robert Day, RNRF Executive Director. Negotiators for SAF were Thomas Borden, President; William Towell, Vice-President; and John Barber, Executive-Vice President.