The Profession Versus the Population

In relatively recent times, there has been considerable discourse, both written and verbal, addressed to describing the world population crisis. Most suggest some course of action for surmounting the crisis while portraying a picture of doom if we don’t act and act now.

Most members of the Range Society would probably agree that human numbers cannot be allowed to increase much longer if the world ecosystems are to be retained as we now know them. Surficially, however, this problem appears rather remote from the realm of our objectives as a professional society engaged in advancing the art and science of range resource management.

A common theme of several “Viewpoints” in recent issues of the Journal has been an appeal to broaden our perspective, being careful not to define our area of expertise too narrowly in terms of the Society as a whole. I suggest that while we are so eagerly involved in sustained yield management of the resource, we may be neglecting an equally pressing need to sustain man himself, and thus our profession.

There is no question that the range profession is active in the struggle to stabilize or even reverse present trends in environmental quality. While this is a worthy cause, it would seem to be a case of treating the symptom rather than attempting to eliminate the cause. Is it possible that man, uncontained, can so drastically alter the world environment within the span of the near future that our present concepts of resource management lose their relevance? Many Society members are engaged in the modelling effort of diverse ecosystems under the auspices of IBP. Will the structure and function of these ecosystems change so rapidly that the first generation models cannot be salvaged since they would be applicable to totally different and possibly nonexistent systems?

Leo Marx (Science 170(3961):945–952, 1970), writing on the convergence of literary and ecological views of America’s dominant institutions, makes an interesting point. In talking about achievements of programs implemented by the admirable if narrowly defined work of such agencies as the National Park Service, the U. S. Forest Service, or the Soil Conservation Service, he contends that they did not raise the kinds of questions about our overall capacity for survival that are brought into view by ecology. In this light, Marx suggests that conservationist thought is pragmatic, whereas, ecology is, in its purest meaning, radical.

I believe that in the past, the thinking of the Society has necessarily been conservationist in nature because the philosophy applied to range resource use prior to its establishment in 1948 required the pragmatic approach. Now the survival of man himself is threatened reminding him that he is after all only another species of organism subject to stresses, strains, and constraints of his environment, however greatly modified. The Society must now act to optimize its efforts between the pragmatic and radical approach.

This is not to assert that present lines of pursuit are misoriented, but rather to suggest they are not wholly encompassing the best interest of the profession. Population control is very much related to the success of range management programs and should therefore be added to the list of priorities for action by the Society. Range interests may lose ground in the spectrum of federal multiple use priorities as the population expands.

Scientists and their professional organizations are well-equipped and obligated to exert influence and pressure on those who legislate national and regional policy. Marx discusses the involvement of scientists in politics in his article. Science editor, Philip H. Abelson (Science 167(3916), 1970; reprinted in JRM 29(2):152, 1970) has elaborated upon the social responsibilities of scientists.

Although I claim to recognize that a serious problem confronts the profession, I do not profess to have all the answers. No doubt at the outset, we need to determine an optimum population density that would be compatible with our goals of range resource management as we now understand them and then begin work immediately to achieve this optimum. Obviously this optimum must take into account other aspects of what we consider to be a quality life.

Of utmost importance is input from concerned individuals within (and without) the profession. Certainly this should be kicked around at national meetings and is worthy of an intra-society committee charged with the responsibility of developing and implementing population control strategy.

As a professional group, we can present a united front of concerned individuals to lobby if we must. (This may be more vital than tax exempt status for the Society (re: Articles of Incorporation, Rangeeman’s News 2(5):3, 1970.) If government truly performs those functions that society cannot or will not do for itself, then it is past time for it to get moving on population.

We can stress population limitation in Society publications and meetings. Perhaps a symposium should be sponsored to discuss the effects of greater than optimum densities of people on the range resource and its management. The Society is in a position to be of influence in Mexico, Central and South America and many other countries. However, I feel the problem within the U. S. is by far the most serious and should initially receive the majority of our effort, due to the extreme per capita demand for consumer goods and the resultant per capita capacity to cause environmental degradation. Our educational avenues should be utilized to emphasize interactions between environmental deterioration caused by overcrowding and the cost/benefit ratio of range management programs. Economic reasoning may drive the point home.

In a recent speech commemorating the 20th anniversary of FAO, Pope Paul VI ruled out present artificial methods of birth control as a means of solving population problems and he pleaded for steps to curb pollution of the air we breathe, the water we drink, and for the prevention of a veritable ecological catastrophe (St. Louis Post-Dispatch 92(316):7A, 16 Nov. 1970). In the same speech, he talked of the “great temptation to use one's authority to diminish the number of guests rather than to multiply the bread that is to be shared” (Fairbanks Daily News-Miner 68(269):2, 16 Nov. 1970). The Pope is evidently challenging technology to maximize two functions (people and sustenance) simultaneously, heretofore not considered mathematically a possible alternative. Surely we can be quick to point out the fallacies of such illogical statements as these. I believe it is far more moral to limit births artificially and avoid a life of misery and malnutrition for the uninvited guests than to adhere to Vatican philosophy.

Let's maximize quality of life, not quantity of people.

For those who would say that more research on the effects of overcrowding...
is needed before adapting a radical course, Dr. Paul Ehrlich (Population Bomb, 1968) appropriately replies that "such research initiated today will be terminated not by success, but by the problem under investigation." For those who argue that the future of our profession depends not on population density, but on new concepts of resource management brought about by increased technology, consider this prediction by Dr. Isaac Asimov (True Magazine, January, 1971): Under present trends the earth will have a population of near 6 billion by the year 2000, a value about double present numbers. Pollution, exploitation of resources and concentration of population in metropolitan areas will have increased to far more than double. He further states that "even if we escape an actual nuclear war, our technological civilization, precariously enough balanced now, will topple and the world we know will come to a bloody, catastrophic end." This leaves our profession caught between a rock and a hard place. Are we only marking time when we might be making it? Let's not dismiss this scenario as only one man's prediction. We should know its validity long before the next 30 years passes.

Our professional interests are at stake to say nothing of our environment. We have an obligation and the opportunity to put the pressure where it counts. We can make our contribution toward limiting the guest list in order to preserve the "good life" and the invited guests.—Patrick I. Coyne, U. S. Army Cold Regions Research and Engineering Laboratory, Fairbanks, Alaska.

Proper Use: Old Concept—New Ideas

The amount of grazing based on degree of use of the key forage species remaining constant each year will not permit maximum sustained use. Key forage species are usually grazed first and consequently other forage species will be underused. The definition of proper use in the Society's "A Glossary of Terms Used in Range Management" is, "The degree and time of use of current years growth which, if continued, will either maintain or improve the range condition consistent with conservation of other natural resources." The phrase "if continued" limits the practical application since it conveys the idea that the time and degree of use will remain constant from year to year. This would limit application of the proper use concept only to ranges which are used each year at a time other than the growing season. Any use during the growing season is harmful to plants and would therefore not be "proper use."

A good solution is to design a grazing system that will meet plant requirements over time and animal requirements annually. This involves a thorough inventory and analysis of the range resources, including plant pheno- nology, and the needs of the livestock operation using the range. Analysis of these components, along with fence location and water development, will allow the logical choice of a practical system of grazing.

Obtaining proper grazing use has long been emphasized as a means of improving the condition of rangelands. The question might be asked as to just how much range improvement has actually resulted from this practice alone.

In reality, without changing the time and pattern of grazing, proper use alone still results in overgrazed areas and undergrazed areas. Grazing animals are very selective. On dry rangelands, increase of desirable native species in the plant composition is very slow at best. Examples to follow show the difficulty of obtaining proper grazing use even under controlled conditions.

E. J. Dyksterhuis (Cattleman. 35(12): 21, 60, illus.) gave some of the principles that must be remembered if sound range management is to be practiced. "Just a few head of livestock will keep areas near water and along draws grazed down. Also, the very best grasses, the kind that need the rest most, will be kept grazed down about as much with 5 head as with 50. A couple of livestock in a poor pasture make the rounds often enough to keep the more palatable grasses from increasing." Dividing the range and running twice as many livestock on a pasture for half as long has many advantages. "It takes about half as much riding to look after the livestock. It gives part of the range a complete rest. It results in more even grazing because the livestock don't spend as much time traveling around hunting 'ice cream' plants. Such plants are soon leveled and then livestock are forced to eat 'meat and potatoes' too.'

This points up the need for using a range in some manner other than grazing to a specified degree of use and at the same time year after year.

Each range has a complexity of plant communities and resource problems. Livestock operators have divergent needs. These factors should be analyzed and a grazing system planned to fit the specific operation. A reasonable time should be set to reach the desired objectives. The grazing system selected may vary from simple to very complex. This will depend on the resource needs, ability of the livestock operator to adjust, and availability of funds for financing improvements. The system chosen should be the most economically feasible and physically practical to reach management objectives.

A grazing system, according to the Society's "Glossary of Terms," is simply, "The manipulation of livestock grazing to accomplish a desired result." The desired result, in most cases, is perpetuation of the resource and maximum net returns from grazing animals. These results often may be reached in more than one way, depending on the needs of the resource and the livestock operator. Some examples comparing different grazing systems are offered here, not to promote one system over another but to show that ranges respond in different ways to different systems. Cost of implementing a system must be considered, as well as the amount of time desired to reach objectives. Sometimes all that is needed to gain improvement is a change in the season of use, as illustrated by Hickey and Garcia (U. S. Dep. Agr., F. S., Rocky Mtn. For. & Rge. Exp. Sta., Res. Note RM-35, 3 p).

Three watersheds were studied for 12 years. Yearlong grazing was the practice the first 6 years and stocking rates were adjusted annually on the basis of herdage production. The objective was to utilize 55% of alkali sacaton (Sporobolus airoides), but the utilization averaged from 11 to 87% of this species. Ground cover index of alkali sacaton declined 34% during this period. The second 6 years, the objective was the same but the grazing period was from November through April; i.e., summer deferment grazing season. During this 6-year period, alkali sacaton increased...