

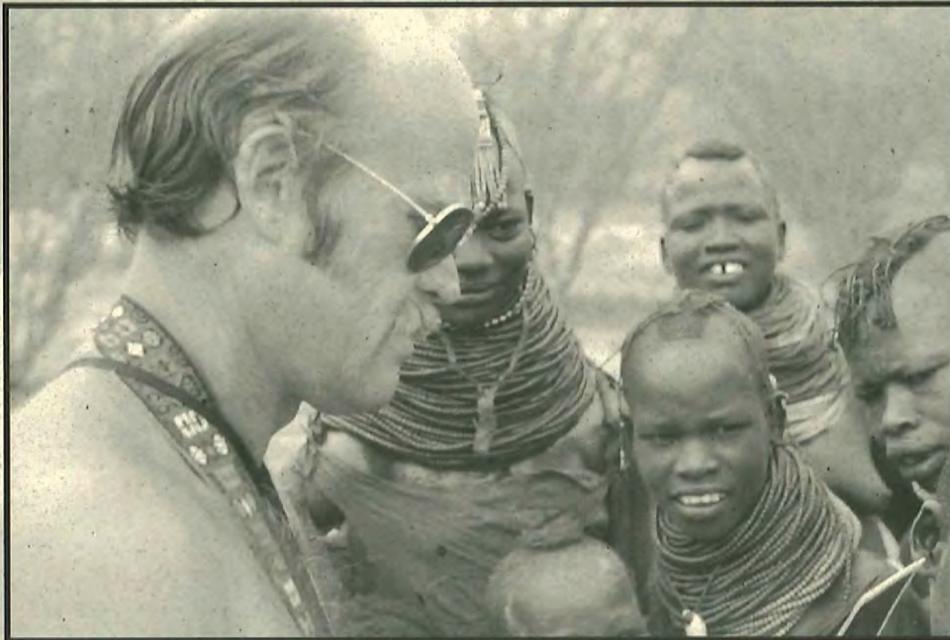
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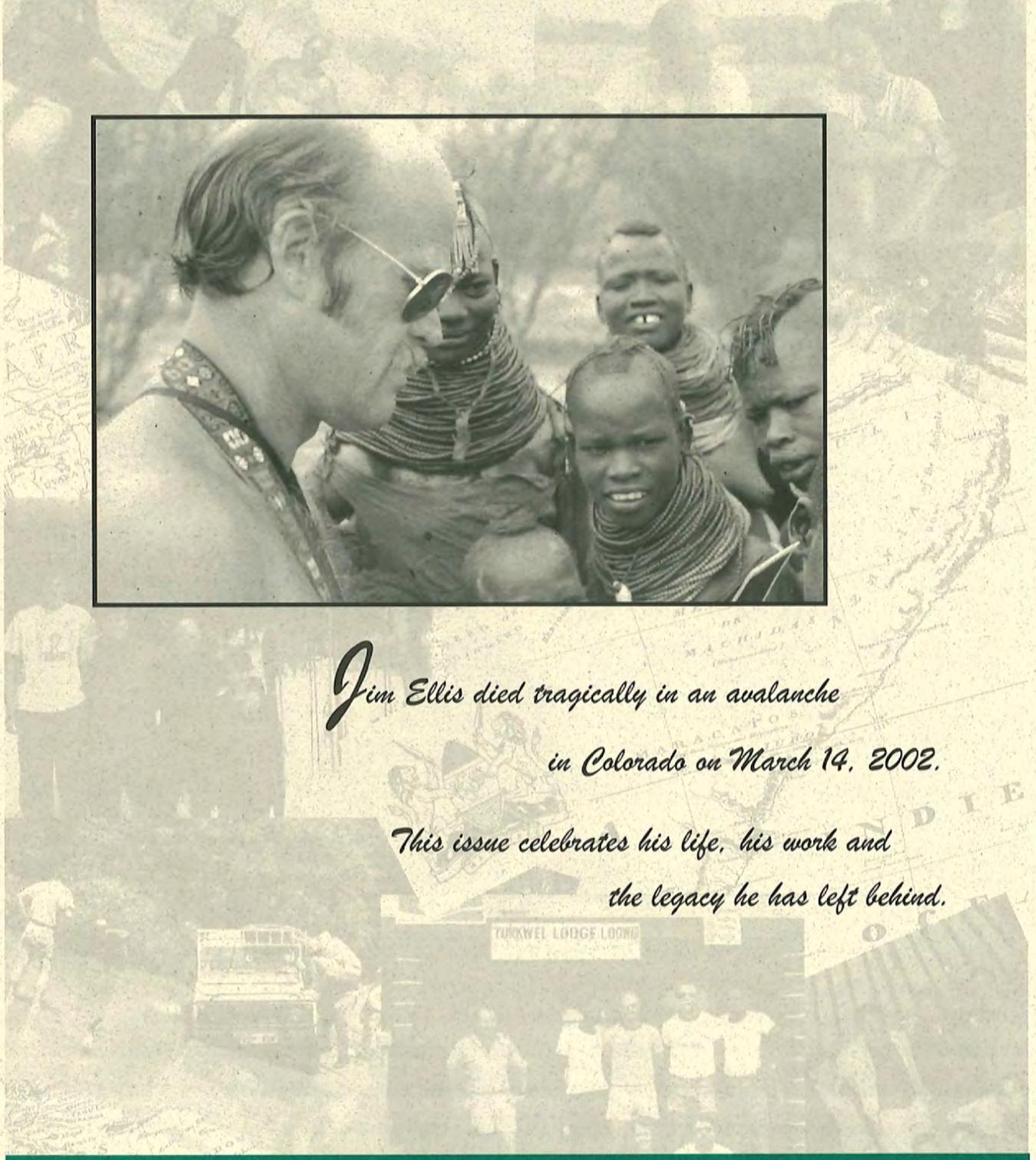
# RUMINATIONS

NEWSLETTER OF THE GLOBAL LIVESTOCK COLLABORATIVE RESEARCH SUPPORT PROGRAM



*Jim Ellis died tragically in an avalanche  
in Colorado on March 14, 2002.*

*This issue celebrates his life, his work and  
the legacy he has left behind.*



## Jim Ellis and the Global Livestock CRSP

by Montague W. Demment, Program Director, GL-CRSP

The death of Jim Ellis was both sudden and shocking. As time has passed and we come to grips with this loss, I have reflected on Jim, our relationship with him and his contributions to the Global Livestock CRSP and the science that forms the foundation of our program. I knew Jim for almost 30 years. I first met him at NREL back when the IBP (International Biological Program) was winding down. I was a graduate student in search of unique data and the IBP had that data. The time he took with me to discuss my needs was both generous and sincere. But most memorable was how our discussion expanded to cover a wide and diverse set of topics and I left stimulated and energized. My sense from talking to his students is that this was a typical interaction with Jim.

Our paths crossed later in the 1970s when he was working on the Turkana project and I was doing my thesis field work in Kenya. More often than might be predicted by chance I ran into Jim in Nairobi. We would sit and have a beer or two and discuss our work. Again I always left the meetings with some new vision that Jim had imparted. Little did I realize how what he was doing in Turkana would have so much impact on an area seemingly far

from my interest then but now so close.

When I became Director in 1994, the Small Ruminant CRSP, as our CRSP was then known, was slated to be terminated. We had to work hard to reestablish its credibility and a major part of that effort was to redesign the program. The process was initiated with a major meeting at Winrock in 1995 where we gathered some of the most experienced livestock and development people to set the broad goals for the future GL-CRSP. Jim was a key participant. Transitional times are always difficult for any organization and certain people have the characteristics of calm objectivity and clear insight to guide the process. Jim was such an individual. His contributions at the meeting helped bring resolution both organizationally and scientifically.

Shortly thereafter I asked Jim to join our Advisory Panel (AP). In the AP discussions, he always contributed scientific insight, figured a way to present a seemingly intractable issue in a way that welcomed a solution and drew conflicting parties to compromise. Jim's scientific vision was broad and integrated and brought a perspective to range systems that made a major contribution to understanding

the ecology of pastoral systems. Livestock development was being viewed by donors as a failed venture and they were refocusing on other development options. The problem was, as the Turkana work demonstrated, the application of an inappropriate model for tropical semi-arid systems.

The work was critical to the development community and fundamental for the GL-CRSP in a number of ways. First, it provided a logical reason for the failure of past livestock projects. It was not something inherent in the concept of livestock development that caused ineffective development outcomes but rather it was that we had the wrong model. Donors began to look again with guarded optimism on investing in livestock and pastoralists.

Second, Jim's work demonstrated clearly the role of research in the development process. If the inappropriate model is applied then the interventions do not work. Jim's work showed that if the donors want programs that are integrative and multidisciplinary then they must invest in research to understand how these complex systems function before they

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**Jim Ellis** was born October 3, 1938 in St. Louis, Missouri. He received a Bachelor's of Science degree in Animal Husbandry and a Master's of Science degree in Wildlife Biology from the University of Missouri. He received his Ph.D. in systems ecology and Zoology from the University of California, Davis.

Dr. Ellis' preeminent work on understanding the interplay between people and natural processes in arid ecosystems set a global standard for novel research spanning scientific disciplines. He applied integrated, interdisciplinary approaches to understanding pastoral ecosystem ecology throughout the world—in Africa, the Mideast, Asia, and North America. His work exerted broad impacts on contemporary science, but more, played a fundamental role in supporting wise management and policy in



*Jim Ellis, Kathy Galvin and their sons, Ian and Stefan.*

the developing world. Particularly notable was his extensive research on the ecology of pastoralism in the Turkana District of Kenya during the 1980's, studies supported by three major grants from the Ecosystem Studies Program and the Anthropology Program of the National Science Foundation. This project

produced over 200 scientific publications. It was the first example of a major research project integrating social and ecosystem science, an example that has been frequently imitated.

Dr. Ellis was a systems ecologist in the classical sense—his greatest strength was his ability to conceptualize large, complex scientific problems as whole systems, to sketch the interactions among their significant components, and to develop ways to understand their dynamics. Implementing this approach required building teams of scientists from several disciplines and leading those

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*Jim with three of four sons: Ian, Eric and Stefan Ellis. Taken on his last ski trip the day before the avalanche.*

# The South Turkana Ecosystem Project (STEP)

by D. Layne Coppock, J. Terrence McCabe, Michael A. Little, and Michael B. Coughenour

One of the milestones in the career of Jim Ellis was the South Turkana Ecosystem Project (STEP). Jim had a key role in the creation of the STEP and was largely responsible for guiding project activities for another 10 years. Ideas began to be formed in 1978 as a result of informal planning meetings prominently including anthropologists Mike Little and Neville Dyson-Hudson of the State University of New York at Binghamton and fellow NREL ecologist Dave Swift, among others. The Ecosystems Studies and Anthropology programs of the National Science Foundation provided core funding and the first research team entered the field in 1980. This was the first of three such NSF grants that helped propel the STEP to international prominence.

South Turkana is a hot, arid environment located in northwestern Kenya. The landscape is rugged and harsh, yet beautiful in its own way. The region consists of sandy alluvial plains punctuated by basement-complex mountain ranges and lava plateaus. Vegetation varies from annual herbaceous associations to mixes of dwarf shrubs, bushland, and open savanna. Numerous, parallel drainages occur on the sandy plains creating a vein-like



Researchers on the Turkana STEP Project.

pattern across the land. Drainages support gallery forests of large, umbrella-crowned Acacia trees. Turkana nomads herd an extraordinarily diverse assemblage of cattle, camels, donkeys, sheep, and goats. These animals yield milk, meat, and blood for human consumption. Mobility is a key attribute of resource-use strategies for the Turkana, not only for them to exploit ephemeral forage and water, but also to avoid incursions by enemy tribes as well as visits from Turkana bandits. The latter point underscores the inherent hostility of South Turkana. Whether it was drought, cattle raiders, disease, thorn trees, large nocturnal spiders, piping-hot beer, super-

sized portions of ugali (maize meal) at dinner, or the ever-present nagging from elderly Turkana who wanted something you either did not have or did not want to part with—right then—most of the people who studied there as part of the STEP retain an odd affection for the place. Many of these people even want to go back some day—if only for a short visit.

The STEP was a landmark effort in ecosystem science, particularly with regards to the inclusion of humans in an integrative ecological framework. Key research contributions of the STEP are diverse. They prominently  
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include an improved understanding of: (1) the highly dynamic and diverse nature of primary productivity in arid rangelands; (2) the role of livestock species diversity in forage niche separation, resource use, and human food production; (3) decision-making and land use by pastoral people; (4) seasonal patterns of human food intake and nutritional status; (5) health, growth, and reproduction of the people; and (6) the role of



livestock and human activities in affecting ecosystem processes, prominently including spatial patterns of woody plant establishment. One of the most important research contributions of the STEP was a synthesis effort that proposed that ecological dynamics of arid ecosystems are non-equilibrium—this specifically deals with the idea that vegetation composition and productivity can be largely controlled by rainfall variability and not by herbivore impacts, as had been commonly assumed (see related article page 6). Despite that the STEP led to nearly 200 publications, it is notable that the impact of the project has not been limited to the pages of scientific journals and workshop proceedings. The body of research from the STEP that illuminated the need for nomadic pastoral societies to be mobile, opportunistic, and flexible in their resource exploitation tactics in order to be successful spawned new thinking in the management of pastoral systems and in the administration of pastoral development.

Jim Ellis brought a special leadership quality to the STEP. His enthusiasm, intellectual curiosity, and faith in science were infectious. He also possessed a



*Anthropologists Terry McCabe (without shirt), Mike Little (with glasses), and Jan Wienpahl (cradling whiskey bottle) following a fierce rainstorm that blew down tents and created havoc in 1981.*

*This shot of Mike Little will "warm the hearts" of all who knew Mike in the field. Mike needed to keep things tidy in the face of a "hostile environment" in South Turkana. Mike fought a losing battle. Here Mike attempts to scoop up muddy rain water from inside the supply tent after the same fierce rainstorm.*

personality that was generous and humble. These characteristics, in no small measure, markedly contributed to the high productivity of STEP scientists over a remarkably long period of time.

We fondly recall sitting in camp at night by the fire listening to Jim lead discussions concerning alternative concepts of how the Turkana ecosystem worked, the roles played by humans, and how hypotheses might be tested. From an interdisciplinary perspective, Jim was always open to new ideas and encouraged novel ways of accumulating knowledge. Jim embraced both social anthropology and human biology and stimulated new thought among the anthropology community.

Jim was a master at putting together interdisciplinary teams of people to work on complex problems as embodied by the STEP. He recognized the individual qualities that would result in a team working well together, and not just as individuals working side-by-side. Once accepted as a team member, Jim expected you to perform to the peak of your abilities. He trusted the members of his research team on the STEP, and we all trusted him. 🍷

# Jim Ellis and the Non-Equilibrium Idea

By David Swift, NREL

Jim and I had not been in Turkana very long before we realized we were not in Kansas - or even Colorado - anymore. When we arrived there, the region was suffering from a drought which had persisted for almost two years. Conditions, both ecological and social, were bordering on chaotic. Livestock were dying at alarming rates, forage and water were in extremely short supply, human food was running out, people were leaving the system in the hopes of being able to survive elsewhere, and livestock raiding and its attendant violence were at very high levels. Perhaps most surprising was the fact that none of the local folks found this to be unusual.

Shortly after, the drought was broken by a week of hard, steady rain. This resulted in more livestock mortality as the undernourished animals were unable to deal with the stress of being wet and cold. This didn't seem to surprise anybody either - it was just business as usual in Turkana. Eventually, the plants and later the animals responded to the rain by recovering condition and productivity, but herds had been severely depleted by this two year drought, an event which occurs, on average, about every ten years there, while one year droughts occur about once in every 3 or 4 years.



*Jim Ellis' work on the STEP project was instrumental in changing the development community's attitudes about livestock and pastoral people.*

Our previous experiences in more mesic systems had not prepared us for this apparent level of instability.

As we continued working there, it became increasingly obvious to us that this violent variability and lack of predictability in rainfall was one of the most important features of the system. The "average annual rainfall" was a meaningless statistical construct which was never actually realized; and the system was always either recovering from drought or declining because a new drought was underway. Livestock numbers were never near to any sort of average "carrying capacity" that we could determine. If there was a stable point for this system, we couldn't find it; and doubted that the system could find it either.

From this experience we began to develop the idea that the system, though clearly persistent, was inherently non-equilibrium, and that viewing it in that way would be more revealing than trying to characterize its mean state. It has been suggested that the paper we published around this idea in the *Journal of Range Management* in 1988 initiated a paradigm shift of sorts in the way ecologists and land managers viewed arid grazing systems. Certainly there was a flurry of interest in the idea shortly thereafter and several symposia were held and books published on the topic.

Of course, like any "new" idea in science, our ideas were not entirely new. The unfamiliar ecosystem we were trying to comprehend combined with our

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past reading in a very serendipitous way to produce the 1988 paper. We were both aware that, because nutrient intake by ruminants is frequently decoupled from their nutrient requirements, there is reduced negative feedback and a consequent greater potential for instability in systems dominated by these animals, at least in terms of animal condition and production. We had also read and been influenced by the work of other ecologists who had something to say about system equilibria, most notably Immanuel Noy-Meir, John Weins, Buzz Holling and Don DeAngelis and J.C. Waterhouse. In trying to understand how the South Turkana ecosystem worked, we were able, perhaps, to synthesize those ideas into a more general statement of the dynamics of dry systems.

The impact of the paper probably resulted from a combination of factors as well. One was the fact that it was published in a journal that is very widely read by practitioners of rangeland management and economic development in arid systems. Jim felt that the impact was largely due to the fact that most ecologists and social scientists who had been working with pastoral people, with livestock development or with issues of desertification, realized that climate was a dominant factor in those systems, but lacked a unifying concept that would allow them to make full use of that knowledge. It is my feeling that these scientists were dissatisfied

because the behavior of these systems was not congruent with what they thought they understood about them theoretically; and that practitioners of development in particular were frustrated because they were unable to achieve the sorts of results in dry pastoral systems that their training suggested should be attainable. The non-equilibrial paradigm provided that concept for the scientists and allowed the practitioners to reevaluate what might be possible.

The idea has contributed to a change in the way that desertification is viewed by many, and a lot less blame is being shouldered by pastoralists who have persisted in these systems for millennia. As Jim recently wrote in a note for the 30<sup>th</sup> anniversary of the Natural Resource Ecology Laboratory, "Within international development agencies like the World Bank, USAID, and others, development initiatives for livestock and rangelands

were pretty much dead in the water when we introduced the idea". Agencies had admitted failures in this sector and were unable to raise funds from donors because of the strong negative image, world-wide, that livestock had. Today this is no longer the case. Pastoralists are no longer viewed as pariahs and livestock is on the development agenda again. This is not simply because of our work, obviously lots of other folks had important roles in this. However, I don't think anyone would deny that our work in Turkana was instrumental in changing the development community's formerly very negative attitude about livestock and pastoral people." I know that Jim had been concerned about the flagging interest in economic interventions in pastoral areas. It must have been very gratifying to him to feel that we had contributed in some fashion to a reawakening of interest in the welfare of these people who increasingly are forced to deal with so many challenges from within and without their societies. ♡



Jim Ellis in Turkana -- "not in Kansas anymore."

## Jim Ellis' Asian Impact:

# Studying the Biggest Grassland in the World

*By Dennis Ojima and  
Togtohn Chuluun*

Jim Ellis has left a lasting mark in the expansive steppes of Asia. From the heart of Mongolia to the far ends of Central Asia and China, Jim has changed how people study the pastoral systems of the region. Jim's interest in Asia spanned over a decade, beginning with an NSF project to study the grazing lands of Gansu Province with colleague Jerry Dodd, Dave Swift and others. This project resulted in the development of a working relationship and exchange of scientists with the Gansu Grassland Ecology Research Institute in Lanzhou. Jim and the others were able to make a lengthy inspection tour of the grasslands of this region, going west from Lanzhou along the route of the old Silk Road as far as Zhangye. Jim developed an appreciation for the ecology of these grasslands and of the problems associated with their use and management, particularly issues of range degradation and winter nutrition of livestock. Jim's



*(Clockwise from left), Dennis Ojima, Mike Coughenour, Jim Ellis, Chuluun Togtohn, Lyndsey Christjansen and Robin Reid meet with a local woman on a recent trip to the region.*

astute observation that the Chinese were certainly the World's experts at stabilizing sand dunes but appeared to be unable to organize themselves to prevent their formation was typical of his ability to see the "big picture" and get to the heart of a difficult problem. This trip had a lasting impression on Jim and led him to further studies of how human dominated systems there can be sustained over so many generations within a highly variable and often inhospitable climate. This visit had a long-lasting impact on relationships

between Chinese and U.S. research scientists and on ecosystem research at NREL and elsewhere.

His expert opinion and extensive knowledge of pastoral systems and system ecology was much sought out in the region and he served as an expert for US delegations to China in the late 1980's and then Mongolia in the early 1990's. This involvement culminated in chairing the US National Academy of Science Panel on "The State of Grasslands and Grassland Science in Northern China" and resulted in a published report by that same title in 1992.

The insight which Jim provided in his research endeavors in the region have led to several successful research applications from NSF as well as continued participation in joint research activities among the National Academies of the USA, China, and Mongolia. The focus of much of his research dealt with seeking to understand the fundamental linkages between humans and environmental resources, especially with the

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utilization of these natural resources in a highly variable arid environment. Jim and his colleagues here in the US, Europe, and Asia have integrated their knowledge, techniques in remote sensing and modeling, and field observations to better understand the dynamics of the Asian steppe under natural conditions and under increasing human activities.

Jim collaborated on multiple research projects in China, Mongolia and Central Asia. On the "Policy Alternatives for Livestock Development in Mongolia" project, funded by the MacArthur Foundation, and in collaboration with C. Humphrey, D. Sneath, J. Swift and R. Mearns, Jim looked at whether the concept of non-equilibrial dynamics applies in the rangelands of Mongolia and Asia in regions where long-term average precipitation (at a threshold level) is 266 mm or below. This includes, for example, over one-half of the territory of Mongolia. Other insights came from research he carried out in collaboration with R. Behnke and C. Kerven in Kazakstan, Central Asia on the DARCA project (Desertification and Regeneration: Modelling the impact of Market reforms on Central Asian rangelands) funded by the European Commission. Jim hypothesized that increased climate variability in addition to rangeland degradation may have contributed to the collapse of the Kazakstan livestock sector. Inter-annual rainfall variability in the study site was low for most of the

last 30 years, but increased dramatically in the 1990's, which may have shifted the ecosystem from stability toward instability or from equilibrium toward disequilibrium.

Two studies led by Jim Ellis in collaboration with K. Price, F. Yu and colleagues from the Chinese and Mongolian Academies of Science and supported by NSF/MMIA have found more complex responses of the Mongolian Steppe to global warming. They have identified large areas of eastern Mongolia and Inner Mongolia where the onset of green-up has indeed advanced over the 1982-1991 period, presumably due to warmer temperatures in winter. Most scientists accept that global climate change is a reality, but the effects and implications remain uncertain for specific regions of East Asia. This study has antithetical implications. Previous research established that warming trends in high latitude environments are causing longer growing seasons, increases in photosynthetic activity, and greater CO<sub>2</sub> uptake; all trends which could reasonably be interpreted as positive or at least not excessively deleterious for those ecosystems experiencing warming trends. The delayed green-up in dry ecosystems seen here could be linked to lower photosynthetic rates, lower CO<sub>2</sub> uptake and reduced primary production rates. These changes would certainly be

viewed as negative for the herbivores and humans that depend on high latitude grassland / steppe environments for their sustenance and support.

Over the course of twenty years working in Asia, Jim fostered numerous linkages between scientists of the region. Jim's first visit to Mongolia was in June of 1991 soon after it became an open country. The National Academy effort in 1992 introduced many Chinese and Mongolian scientists to other US scientists and has promoted numerous research activities and projects. The development of the project "Land Use in Temperate East Asia" (LUTEA) evolved from Jim's introduction of Togtohyn Chuluun to Dennis Ojima in 1991 as part of Jim's participation on a US National Research Council activity on China and Mongolia. The networking that Jim promoted among researchers everywhere has proved to be greatly beneficial in Asia in breaking down well-developed institutional barriers, and in promoting greater interactions across scientific disciplines and among land resource managers. The vision of sustainable pastoral systems in the Asian steppe is one which many of us share with Jim. Realizing that vision remains a challenge for U.S., Chinese, Mongolian and Central Asian scientists and land managers. ♡



*Jim Ellis, Glenn and Shauna BurnSilver, Jana Roque de Pinho, Richard Solonga Supeet and Martin Mulama visiting a Borana well outside Meru National Park.*

*In the classroom or the field, Jim Ellis was a mentor and teacher to hundreds of students*

## A Mentor and a Teacher

*By Tom Hobbs*

Jim Ellis enjoyed an exceptional life in many ways, but I am going to write specifically about Jim as a mentor and a teacher. I am currently an ecologist and Senior Research Scientist at the Natural Resource Ecology Laboratory, Colorado State University. As well, I was Jim's first graduate student. I confess I find it is a daunting task to write on behalf of those who will be his last students, and all who came between. So I will try to write about a couple of things that we could all agree on as having been important aspects of Jim's proven ability as a mentor and a teacher.

The most important attribute in a successful scientific career is confidence, a belief in your ability to rise to challenges, and Jim gave courage and confidence to his students in a

very unusual way. In working with Jim, there was a fundamental, underpinning expectation that you had something to contribute that no one else could do, *including Jim*. It wasn't that graduate students were there simply to do work that he didn't have time to do, but rather that students could and would achieve things that were more than Jim could offer himself. Jim believed in himself enough that he was delighted to see his students achieve beyond his own achievements.

Robin Reid, systems ecologist and Director of the People, Livestock and Environment Program at the International Livestock Research Institute in Nairobi, Kenya, is another of



Jim Ellis' graduate students. She adds, "I have a story that exemplifies one of the most valuable lessons I learned from Jim. Jim enjoyed a magnificent blend of confidence and humility. I cannot count the number of times that he would walk into a room, where he was clearly the intellectual leader, and sincerely convince each person he or she had something of great value to contribute. He often prefaced his explanation of a new idea by saying, 'I am not an expert in this, but...' — or —

'I am not sure this is so, but...'. He would then proceed to lay out several of the best and most original and clearly articulated scientific ideas I had heard in months, as if they had just popped into his head."

Shauna BurnSilver, current PhD student in the Graduate Degree Program in Ecology/Human Ecology at the Natural Resource Ecology Laboratory, CSU, and Project Manager of the GL-CRSP



*Jim and students in the Turkana days.*

### **Jim Ellis Graduate Mentorship Program**

The Global Livestock CRSP Dissertation and Thesis Enhancement Grant Program has been renamed in honor of Dr. Jim Ellis. It will now be known as the Jim Ellis Graduate Mentorship Program.

The grant program provides partial support for dissertation and thesis research in order to improve the overall quality of the student's project, to allow candidates to conduct research in specialized facilities or field settings away from their home campus, and to provide opportunities for greater diversity in collecting and creativity in analyzing data than would otherwise be possible.

Students participating in the Global Livestock CRSP projects are eligible for awards. For more information on the program, please contact the GL-CRSP Management Entity, [glcrsp@ucdavis.edu](mailto:glcrsp@ucdavis.edu). 🐾

POLEYC project, also can speak to Jim's unique qualities as a mentor of students and young scientists. "Jim would solicit your opinion, and you would then present an idea in more (*or less*) perfect form. Sometimes the agreement was instantaneous, but other times he would think for a moment and say, "I see where you are going, but I'm not yet convinced....so convince me." The onus was on you to continuously strengthen and articulate your ideas, with Jim there as a gentle, but insistent devil's advocate. The push was supremely challenging, and I believe it ultimately led to students and scientists who were confident of their abilities to speak in a variety of forums; anywhere from a scientific conference to a community meeting with East African pastoralists.

Those of us who have worked with Jim know exactly what Robin, Shauna and I refer to,

and know how much his quiet humility and confidence led us to be more than we thought we could be.

Another aspect of Jim as a teacher has to do not so much with science as with life. Anyone who has a reasonable collection of IQ points and who is willing to subjugate his or her entire life to work can succeed in science. Jim showed us however, that the real prize was not just a successful livelihood, but a successful life. He showed us that being fit and athletic at 63 is achievable, that building your house with your own hands is worthwhile, that raising children is deeply fulfilling, and that there are many things that are more valuable than writing yet another paper. I believe I can speak for all of Jim's students in saying these lessons in balancing both great scientific achievement and a fulfilling life may be the wisest of all. 🐾

**O**f Jim Ellis I do not have many stories to tell, since, as the co-adviser of my PhD studies, Jim was very discrete during the two years and a half of my course work at Colorado State University. I thus got to know him better and to really appreciate him in the recent months, during the January 2002 GL-CRSP trip in Tanzania and Kenya.



know him better and to really appreciate him in the recent months, during the January 2002 GL-CRSP trip in Tanzania and Kenya.

At that time, since I was the most inexperienced participant, Jim had been constantly by my side, instructing me in the tricks of driving a Land Rover in East Africa which did not prevent me from putting that very Land Rover in the deep and populated waters of the Tana River!

In that occasion, Jim kept his cool as always, being more concerned about my safety than anything else. In such an occasion, many people I know would really have been annoyed, to say the least.

Jim's concern and humor also showed in the fact that, having declared that "for the Turkana, you are not much of a woman" (because he thought I had lost too much weight since I started to study at CSU), he decided that I should eat a bunch of bananas everyday. He would then ask everyday "so, Joana, have you eaten your bananas today?" with that nice smile of his. This simple sentence marked me at that time and will always stay with me as both a wonderful memory of the trip as well as of the person that Jim was, and whom I really came to admire and love.

*-Joana Roque de Pinho  
PhD candidate Graduate Degree  
Program in Ecology, CSU  
Graduate Fellow, International Livestock  
Research Institute, Nairobi*



*Jim "supervising" the recovery efforts for his land rover which "fell into" the Tana River, Meru National Park.*

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It was quite horrible when I receive among the saddest news ever in my life that Jim Ellis our beloved GL-CRSP MAN passed away. I first knew Jim Ellis in my home area when he visited his student for whom I was the research assistant (Shauna BurnSilver) at Imbirikani.

Jim Ellis was a loving and caring and hard working father whom I had really been strongly attached to the project through his effort and my self really enjoyed being in the project headed by him.

I loved the way Jim taught people in the workshops I attended one in Nairobi and the other one in Loitokitok and I know this better because I was his translator in both meetings and actually he has been very concerned and the best teacher.

He has been really advising, guiding and counseling me just like my own father. I also accompany Jim to Meru National Park to the trip I was invited by my great friend Shauna BurnSilver and Jim really took care of us even after his land rover fell into the Tana River.

So to me the world has really lost a man.

And I am very sure it is very hard to fill the gap left by our beloved Jim Ellis.

But may God rest his soul in eternal life. AMEN.

*-Richard Solonka ole Supeet  
GL-CRSP Research Assistant*

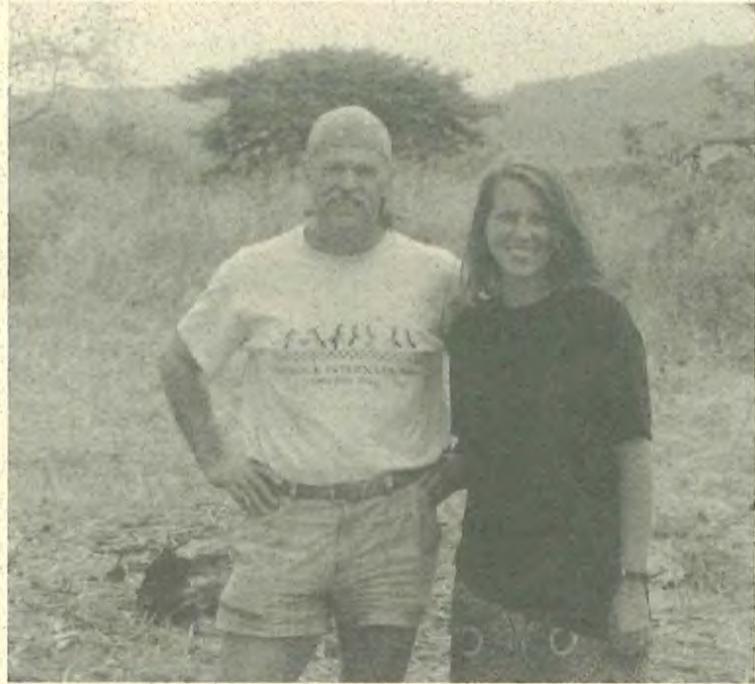
In August 1997, I arrived at Colorado State University for my sabbatical leave. While there I happened to interact with scientists at the NREL. Among these were Mike Coughenour, Bill Parton, Dennis Ojima and Jim Ellis (but on rare occasions). At CSU Mike and I talked of the upcoming GL-CRSP program and I voiced my interest to participate in it. When this program took off in 1998 I happened to now know Jim better as he was one of the key scientific investigators. My relationship with Jim was that of a colleague who was always available for professional consultation. He was always able to go to great lengths to accommodate views of all the participants in the program. He was at ease whether dealing with the local Maasai pastoralist or the top government policy maker. He had a way of putting people at ease even when arguments generated a lot of "solar level" heat.

After the first phase of the GL-CRSP ended we embarked on the second phase in 2001. In this phase of the GLCRSP POLEYC Project Jim was the Principal Investigator and as such I had more opportunities to work closely with him. By the time of his passing away Jim had steadily steered the program to great heights and we were in the process of embarking on more practical issues of pastoral – livestock – wildlife interactions in East Africa. Jim literally knew all the corners of East Africa where we were to carry out these studies and his advice was invaluable. We all miss him whether as friends or professional colleagues. His bright and happy face will always be with us and we will greatly miss his laughter and professional guidance. I pray that we keep Jim's memory by making the POLEYC CRSP program a success.

*-Jenesio Kinyamario  
Department of Botany, University of Nairobi*

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Jim had a way of changing people's lives. My life was changed on the day he entered it, the day he left it, and several times in between. I "discovered" Jim toward the end of a year-long search for suitable graduate programs via African snail mail while living in Namibia with the Peace Corps. Not only did I find the program that I was looking for at NREL, but I also found an advisor who through some perfect balance of guidance and patience allowed me to create my own scientific identity and vision. Not once did he ever tell me what I *should* do. When visiting me in the field he never attempted to take control of the schedule, daily events, or the interviews I conducted with pastoralists; He tried to tell me that he didn't know where to go or who to talk to, but I knew better. It's rare to find such a natural leader who is so willing to let his student show the way and discover the road for herself. Jim taught me that to follow is often the best way to lead; this is the first example that I will follow when I have students of my own.



*Jim and Stacy in Ngorongoro Conservation Area during Stacy's fieldwork for her Master's degree.*

Over the last five years Jim and I often 'argued' over what the *really* interesting questions were. Of course I was usually the one prompted by Jim saying, "Convince me." In the end we almost always ended up with something better and more interesting than either of us had gone into the meeting with. We also talked about running (or not), his kids — Jim loved to talk about his kids -and looking forward to the next venture into the field. This almost always happened over lots of cheese and fruit. I had wondered if he always timed his lunch to coincide with our meetings, but after talking to people over the last few weeks I'm beginning to think he had an everlasting supply of cheese and fruit.

My last conversation with Jim took place on his way out the NREL door to the annual ski trip with his family and friends. He was already starting to relax his shoulders after the last few weeks of hectic project planning and meetings. His response was, "Yes," accompanied by a big smile. Jim is no longer here to talk to about research plans, or to tell stories about his kids. But as I head back into the field, the vision is there, and I'll always have him in the back of my mind saying, "Convince me."

*-Stacy J. Lynn  
Current PhD student in Ecology  
NREL, CSU*

(continued from page 3)

## Jim Ellis

teams to capitalize on their diverse strengths. This way of doing science has recently emerged as a central component of the national agenda in ecological research. Dr. Ellis was a leader in demonstrating that few important ecological problems would yield to the efforts of single scientists working alone and as such, he can be credited with motivating fundamental shifts in national research priorities.

He enjoyed enviable success in writing successful grant proposals, attracting more than \$10 million in research funds to Colorado State. He was recently awarded a \$1.9 million from the National Science Foundation's highly competitive Biocomplexity competition. The award will support studies of scale and complexity in arid land ecosystems, focusing on the effect of landscape fragmentation on the ecology and economics of arid grazing systems worldwide. He mentored many students, several of whom are now international leaders in ecosystem science and ecology.

Dr. Ellis was prolific in his writing, producing over 100 scientific articles and book



*Jim and Kathy in South Turkana in a STEP campsite. Kathy Galvin was conducting her PhD research in anthropology when this picture was taken in 1981. Jim was PI on the STEP at that time.*

chapters. Two papers authored by Ellis and his colleagues have exerted especially strong impact on contemporary scientific thinking. His seminal paper on non-equilibrium dynamics in arid ecosystems published with Dr. David Swift in 1988 has been cited over 130 times and has motivated symposia and research all over the world. In 1994, Dr. Ellis and his wife and colleague, Dr. Kathleen Galvin, published a synthetic paper explaining dynamics of climate and land-use in arid regions of Africa, a paper that provided one of the first and most insightful analyses of impacts of global change on African ecosystems.

Dr. Ellis was a Senior Scientist at Colorado State's Natural Resource Ecology Laboratory since 1971, serving as its Associate Director from 1986-1992. During 1989 to 1995 he was a Professor in the Range

Science Department. From 1993-1995 he served as Director of the Center for Environment and Sustainable Agriculture for Winrock International Livestock Research and Training Center, an organization that works with people around the world to increase agricultural productivity and rural employment while protecting the environment. From 1995-1996 he served as a program leader for the Conservation and Development Center for African Ecology at the University of Witwatersand, South Africa. Jim lived in a house that was built largely by his own hands in the foothills northwest of Fort Collins. He was a superb athlete, running marathons when he was 60, and an active outdoorsman. He is survived by his wife, and longstanding scientific colleague, Dr. Kathleen Galvin, and four sons, Gregory, Eric, Ian, and Stefan. ♡

*Reprinted from the NREL web site.*



*Jim applied integrated, interdisciplinary approaches to understanding pastoral ecosystem ecology throughout the world. Through his mentorship and leadership, many lives were touched. The world is diminished by his loss. He is pictured here in January 2002 with GL-CRSP Integrated Assessment meeting participants in Loitokitok, Kenya.*

**The James E. Ellis Humans and the Environment Fellowship** has been established at the Natural Resource Ecology Laboratory (NREL) at Colorado State University as a memorial to remember and honor Jim's life. If you would like to contribute to this fund, donations may be sent in care of the Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO 80523-1499. Your gift will help NREL continue to realize the maximum benefits of their educational and research mission by supporting future students who hold the same values that Jim held and shared with NREL. This fund was established in his memory to celebrate his life and perpetuate his work by supporting the NREL in a very meaningful way. We want to thank the many people who have already contributed to this fund.

## In Appreciation for Jim Ellis' Work in the Ngorongoro Conservation Area

*By Victor Runyoro, Principal Ecologist, Ngorongoro Conservation Area Authority, Tanzania*

I came to know Jim Ellis in 1990 when I had been with the Ngorongoro Conservation Area Authority just one year. Jim had spent three months at Colorado State University with Mr. E. Chauis, the current Conservator of Ngorongoro Conservation Area Authority. They were preparing a research proposal on Integrated Assessment for Pastoral-Wildlife interaction in the Ngorongoro Conservation Area (NCA). Jim and Robin Reid visited the NCA in 1990 to assess some issues in the field. I was assigned to take them around the area in a Land Rover Station Wagon SU 25554 which was donated to the NCA by the Wildlife Conservation International (now Wildlife Conservation Society) of the New York Zoological Society. It was a dry season and very dusty, thus, Jim decided to cover his hairless head with a handkerchief as we drove between Kakesio and Endulen. I did not notice that he had lost some hairs until we hit a bumpy stretch and his handkerchief dropped. There were a few jokes but I soon learned that this trio spoke the same language as all of us who were trained as Ecologists.

This was a very crucial moment for me, the NCA, and Tanzania as a whole. I learned that Jim's

experience in pastoral-wildlife interactions which he had gained when working in Kenya could help understand much about the NCA dynamics.

My education fitted well with Jim's project and after completion of my Master's degree, I joined him and worked with him very closely. Jim's experience in pastoral ecology, his charismatic character, cooperation, and knowledge of others made me confident in my day to day work.

Phase one of the GL-CRSP Ngorongoro Conservation Area Project produced a model modified for the area and is a useful tool in balancing food security, conservation and ecosystem integrity in the area. Phase two of the project was

developed in a participatory approach, facilitated by Jim at the International Livestock Research Institute (ILRI) in Nairobi, Kenya. The benefits and lessons gained by the NCA project facilitated the inclusion of Tarangire National Park and surrounding areas. This work is at an infant stage.

During the GL-CPSP second phase in Ngorongoro, under the coordination of Jim, more achievements were recorded. These include the development of the Pastoralist Household and Economic welfare simulator which is linked to the Savanna model. This is a very useful tool in assessing the impact of different livelihood strategies by the NCA pastoral community on the environment as well as on NCA

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*Jim Ellis leading an Integrated Assessment meeting in Tarangire National Park.*

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## Ngorongoro Conservation Area, Endulen, Tanzania

### ***Maasai Community Meeting, January 19, 2002***

In January of 2002, a team of researchers from the GL-CRSP POLEYC project- led by Dr. Jim Ellis- went to Ngorongoro Conservation area in order to demonstrate a series of Integrated Assessment scenarios to NCA Management and representatives of the Maasai Pastoral Community. The scenarios were based on management questions initially posed by the NCA Management Authority; they revolved around the effects of cultivation on wildlife and livestock, carrying capacity for herbivores in the NCA, increasing human population growth, and the potential effects of increased veterinary interventions on human well-being, herbivore stocking rates and the environment. The SAVANNA and PHEWS computer modelling systems were applied to represent ecological and socio-economic interactions between pastoralists, their livestock and wildlife within the NCA. The Integrated Assessment scenarios illustrated the human livelihood, livestock and wildlife trade-offs inherent in the different management and policy options available to the NCA Management and pastoral community. The POLEYC team led three demonstrations; with the NCA Management Authority, representatives of the Executive Pastoral Council, and a group of elders at a community meeting in the town of Endulen. What follows is an excerpt from the 3<sup>rd</sup> meeting: Jim Ellis and Victor Runyoro (Chief Ecologist of the NCA) are responding to honest, but difficult queries from Maasai Elders at this community meeting. Jim Ellis skills as an orator are well-known, but he was able to bring those talents equally to bear in front of audiences as diverse as scientists, government policy-makers, local stakeholders and pastoralists.

**75+ years-old Maasai Elder:** *"I have been a community leader since colonial times. I have lived here all my life. I have seen how people and wildlife interact. I can tell you how they interact. So, you should ask me. God created the people, the livestock and the wildlife. The other tribes have eaten all their animals- we are the only ones left with wildlife. Only here do animals remain. God gave us the grass. People do not eat the grass. Only animals eat the grass. To my amazement, a wind is coming now whereby wildlife and livestock are being separated. But in this place, people and animals have always lived together. People have been coexisting with livestock and wildlife from here all the way to the Serengeti. Back to colonial times when I was a leader, during that time everything was plenty: wildlife, livestock, even rhinos. It was like heaven. To our amazement, the time came when foreigners came to look after the wildlife. Then, rhinos went extinct, they disappeared. We are shocked, the rhinos have vanished. People have been brought here to protect wildlife but rhinos have disappeared. Why wasn't it us who were given charge of wildlife? What amazes me is that there is now a strategy to separate people, livestock and*

*wildlife. Why is there a scramble to separate our heritage, our land, our wildlife?"*

**Jim Ellis:** *"Many of us would like to bring back that Heaven that you speak of. And at the same time...sometimes it's difficult to be very optimistic about it. There are big changes happening all over Africa for pastoralists and their lands- people's numbers are growing, poverty is increasing, land is being taken out of use for grazing by animals and used for other things like cultivation, and wildlife populations are not stable in some areas. Our hope is to keep this place from going too far away from Heaven. But this requires that we all work together to try to keep the NCA as close to Heaven as possible. This means that Maasai and people from the Ngorongoro Conservation Area Authority must listen to each other, and work together, and stop looking and talking past each other.*

**Maasai Elder:** *So many researchers have come to this place. My gratitude goes to you for coming to talk to us. The statistics you gave are ringing in my mind as correct. Yet, I do not know how we can collaborate*

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*with NCAA because they do their own thing in isolation. Very little work that has been done in this place has been shared with the residents. For us, this is a part of ourselves, our lifestyle, it is our happiness to live with nature, the rivers, the trees, the animals, but some people want to deprive us of all this. My question is, with all this research, how do you see that element—when we are born here...and we live harmoniously with them? Yet, others say that wildlife must stay by themselves... what do you say about this in this CRSP project? Now that you are working as friends of the NCAA, how can you bring us together in such a way that we all solve this problem? There has been a gap, and that gap is very serious.*

**Victor Runyoro:** *I will not speak on behalf of the NCAA but as an ecologist, and as a researcher. In the past, many researchers who came to the NCA were biased towards wildlife. This is the reason why more research has been done on wildlife than on human beings in Ngorongoro. But now we have to change. You cannot do research on wildlife and forget the humans when they co-exist here. In this team of CRSP people, we have ecologists, as well as human ecologists. The time has also come that what has been researched needs to be shared with people. These results presented by the CRSP team show possible options, not answers. Options for pastoralists and options for managers. Help us discuss the issues together and find the best solutions. 🌱*



*POLEYC project collaborators at Tarangire National Park, January 2002.*

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## **In Appreciation for Jim Ellis' Work in NCA**

welfare. Under the coordination of Jim, the GL-CRSP team at the National Resources Ecology Laboratory (NREL), Colorado State University, was able to estimate and simulate the NCA'S stocking rates, cultivation and assess the impact of improving livestock productivity on the welfare of the pastoral community in the NCA and on the environment. Because Jim believed in cooperation, collaboration and participation, the author was invited to the Colorado State University for a month in October 2001 to join the rest of the group in making the above assessment.

Knowing that it was important for the NCA Pastoralists to know the outcome of his research he organised a series of demonstrations that were carried out in February 2002 at

the NCA. The demonstrations involved NCA management, and the major NGO's working on pastoralist economic recovery, the NCA pastoral leaders, and a cross-section of Pastoralists are Endulen village. His demonstrations are still fresh in minds of the NCA residents.

Jim's death was untimely, Ngorongoro Conservation Area and other protected areas in Tanzania still needed him. But we can not act against god's decision, he needed him most. The work he has started we hope will not perish but it will definitely prosper because he had already done a wonderful job of bringing together the NCA people and researchers from Colorado State University and ILRI. Love of the environment and hard work should therefore be a sign of Jim's remembrance. 🌱

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## Jim Ellis and the Global Livestock CRSP

can have effective intervention. Third, the work clearly illustrated the role of spatial scale in the lives of people living in an unpredictable world. Jim was asked to present a keynote paper at our program conference in Tarangire National Park in Tanzania. The key point of his talk was that stock rate per unit area increased with the size of the landscape under consideration. The idea was that in semiarid areas the larger the land area the more heterogeneity encompassed and so the greater number of options available for herders in times of stress. The

fundamental importance of this concept is that space and its characteristic heterogeneity are critical resources and their loss to increasing population and cultivation renders traditional pastoral lifestyle vulnerable. These ideas have come to form a core theme of the GL-CRSP that has led to our strength in pastoral systems.

After an initial year on the AP, Jim's desire to be an active instead of advisory player in the GL-CRSP led him to take a pivotal role in forming a CRSP project to address the interaction between wildlife and pastoral peoples in East Africa. As both a team member and later PI, Jim's approach to life and science was serious but always wrapped in humor and a casual exterior that made him easy to approach for students and colleagues. Jim connected with people and those connections brought our program and his projects into a network of science and development that at the time of his death was truly global. Jim's death came when he was at the top of his profession. His CRSP project was making the connections with policy makers



*Jim Ellis delivering the keynote address at the 1998 GL-CRSP Program Conference in Tanzania.*

who have an impact on decisions on critical land use issues. He had just received a major NSF grant (linked in part to the CRSP work) on biodiversity and fragmentation of the world's rangelands. Personally he was an established and respected scientist who was doing what he wanted with colleagues of his choice.

Jim Ellis will be missed and we at the GL-CRSP will no longer benefit from his gifted insight and talents. The void his death leaves is both a testimony to how much he contributed and the integral part he was to us and this program. 🙏

### **Ruminations**

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