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1974

## Executive Meeting Minutes

US/IBP Desert Biome

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US/IBP DESERT BIOME

EXECUTIVE MEETING

Phoenix, Arizona January 5, 1974 8:30 a.m.

MINUTES

PRESENT:

Fred Wagner, Jim MacMahon, Dave Balph, John Thames, Irwin Ting, Chuck Romesburg, Ben Norton, Walt Whitford, Eugene Staffeldt, Bob Chew, Dunc Patten, Fred Turner, Fred Walk, Steve Black

ABSENT:

Wayne Minshall, Clive Jorgensen

PROCEEDINGS:

1. Change in NSF policy

Fred Wagner reminded the meeting that at the 1973 Biome Conference in Tempe, Bill Hazen had projected a 10% budget increase for 1974 and the expectation of continuance of the program for possibly five years. When Jerry Franklin took over as Director of the Ecosystem Analysis Office in August, he and Betsy Clark set a new policy with a planned phase-out of the current Biome programs beginning in 1974. The Desert Biome was relatively fortunate to receive level funding for 1974, but we can expect \$100,000 reduction in 1975 and a further \$200,000 cut in 1976. There is no commitment for 1977, though minimal funding will probably be provided to tie up loose ends. Fred received a letter from NSF confirming a 1974 budget of 1.5 million dollars a week ago.

While the Biomes are experiencing budget cuts over the last few years, the Ecosystem Analysis Office will receive level total budget at about 7.5 million dollars, most of which will be available from 1977 for other Ecosystem-type studies funded on a smaller scale than the present Biome programs -- say, a half-million dollars maximum budget. Participants in the more successful components of the present Biome programs will probably receive favorable review if they submit proposals for new interdisciplinary, inter-institutional projects. In 1974, NSF will have a surplus of only about \$200,000 for new ecosystem studies. This should rise to about one million dollars in 1975 and two million in 1976, so it would be appropriate for Biome personnel to consider submitting new proposals in 1975. If individual Biome investigators or a group of investigators submit a new proposal, the Directorate will provide moral support.

## 2. Review of Biome progress

A letter from Bill Hazen to the Co-Directors dated July 12, 1973, giving a summary of views expressed by the NSF Review Panel was circulated to the meeting. A more detailed and formal site review, promised by Bill Hazen, was regrettably not forthcoming. There was no comment from the Executive on Bill Hazen's informal letter.

Early in 1973, Fred approached several leading ecologists, inviting them to become advisors to the Biome Executive, viz. Monty Lloyd, Holling and Bob Whittaker. Whittaker agreed to review the program research from time to time and, in fact, reported to Fred and David on his impressions of the 1973 Biome conference in Tempe. Copies of this letter were circulated to the meeting.

Larry Slobodkin was a member of the NSF Site Review Panel in June. Following the confirmation of acceptance of the 1974 proposal, Fred formally invited Larry to be the second Biome advisor. This letter of invitation was circulated to the meeting.

## 3. 1974 Budget

A list of budget figures was circulated to the meeting giving a 1973 budget breakdown, the figures proposed for 1974 (\$1,650,000) at the Los Angeles meeting of the Executive in May, 1973, the final 1974 budget figures, and some figures proposed for 1975. The cut of \$150,000 between the Los Angeles meeting and the final submission was taken mainly from the contingency fund of \$75,000 and from program synthesis. The 1974 final budget has no provision for contingency funds.

Fred interpreted many of the differences between the 1973 and the 1974 budgets, and opened these points for discussion. Some highlights of the discussion were:

a. The central administrative budget for 1974 includes Ben (who was listed in resource management for 1973) but not David Goodall who was transferred to the modelling budget. This latter change inflates the final 1974 budget from the 1973 figure, and there is a small amount of padding in the current modelling budget.

b. The central administrative budget for 1974 includes Steve Black as a new addition.

c. Affirmative action pressure at Utah State University has urged the Biome to improve the base of women's salaries. A substantial increase for Vickie Shinn, and other salary rises, account for the rise in the data processing budget.

d. Some of the \$150,000 budget cut was absorbed by reducing the promised increases to validation site budgets.

e. \$21,680 is available in program synthesis for 1974 to be used when the need arises.

f. Jim reviewed expenditure of funds in non-modelling synthesis for the support of one person to develop generalizations on ecosystem function and exercise the SYMAP program.

g. Ben explained the increase in the resource management budget in the light of more intensive research on the Pine Valley grazing trial and more intimate cooperation with the Forest Service. Ben plans to request support for a large part of Don Wilkin's salary from the Forest Service in the future to balance our contribution to their research program.

h. Fred emphasized that the figures given for total Biome budgets are not necessarily additions of the amounts in the respective columns.

i. Fred also pointed out the increases in new studies for 1974 which are evident on the list circulated.

#### 4. Administration changes

Fred confirmed that David Goodall had resigned from Co-Directorship of the Biome to concentrate on other activities.

Over the last twelve months, three process study Coordinators have asked to be relieved of their position: Hanks, Werner and Chew. Of the remaining two Coordinators, Staffeldt is going on sabbatical for the first half of 1974. In view of these developments, the Coordinator's budgets for 1974 were abolished, except for the plant Coordinator who retains responsibility for the large number of plant process studies. Coordination of abiotic, microbiological and consumer studies is being assumed by the Directorate, though Staffeldt, Chew and Hanks have been asked to remain on the Executive and to exercise an advisory role. These changes represent a trend towards a new administrative posture commensurate with the need for the Directorate to take a stronger hand in the integration of Biome research.

#### 5. Modelling changes

The Executive was generally aware of difficulties David Goodall was experiencing in maintaining sole responsibility for the modelling effort as well as fulfilling a number of other commitments. In several meetings of the Directorate with David, a plan was devised to strengthen the direction of modelling activities and spread the responsibility into the Directorate. From now on, Fred, Jim and Ben will

have direct supervision of the animal, soil/meteorological and plant models, respectively. They will take over chairmanship of the modelling subcommittees and continue to work with members of those committees. Fred will be working with George Innis, Jim with Paul Lommen and Ben with Don Wilkin and Walter Valentine, with Clayton Gist's role somewhat undefined; modelling arrangements such as those with NMSU will continue for the time being. The Directorate intends to drive towards completion of a whole-system model by the end of 1974 in a form satisfying David's definition of a Version IV model: a model in which biological processes are driven by exogenous variables, and which is capable of simulating ecosystem function on the validation sites. One of the first tasks in 1974 will be the development of a list of needed parameters for modelling simulation runs on the sites. As a reference point for making modelling decisions, the Directorate is proposing that the Version IV model be designed to answer the question: what is the effect of halving or doubling average annual precipitation on annual production of perennial shrubs. One or two additional questions of a general nature may be set up to serve as supplementary reference points. The Executive was asked to keep their ears open for any assignments to which such a working Version IV model could be put.

The modelling budget will be reduced somewhat in 1975. Modelling work in 1975 will be devoted to exercising the Version IV model and developing high resolution models of specific sensitive processes.

Ben pointed out that all these new arrangements are still unofficial, and will be until David has discussed them with the modelling group, which is expected to happen before January 12.

During discussion of Fred's statement, Irwin Ting suggested that there is an urgent need to insure that process studies are producing data compatible with the model parameter requirements.

#### 6. Contracts for 1974

Fred Walk reported that all subcontracts for 1974 have been completed and sent out except Sleeper's. He mentioned that several clauses are dictated to us by NSF, such as the data bank clause, the patent clause and the termination clause. If any investigator is unhappy with the contract, he should return the entire contract to Fred. If the University changes its overhead there is nothing that the Biome can do about it but, provided the total amount of a budget is not changed, an increase in overhead can be accommodated by adjusting other budget items.

## 7. 1975 Progress

A provisional budget for 1975 was included in the circular mentioned in item 3. Although a total of 1.4 million was given for 1975, the sum of the figures in the 1975 column falls short of 1.4 million by about \$100,000. There will be little change in the first five items handled from Logan. The validation site budgets will each be cut back to about \$50,000 per site. However, as Jim explained, integrative process studies on the validation sites will increase so that total money actually spent on each site may rise in 1975. The figures for continuation of process studies into 1975 are only provisional at this stage. Part of the \$100,000 differential cited above could be allocated to new process studies in 1975. This 1975 budget listing is a straw man to be reviewed at the Biome conference in March, when some firm decisions will have to be taken and proposals for new studies sought. The tentative deadline for 1975 proposals is late spring; the 1975 final budget must be sent to NSF in September.

There was considerable discussion of the amount and method of expenditure of the synthesis item. The meeting was in general agreement that the figure of \$70,000 is a minimum, and that the amount could be increased to accommodate specific integrated studies at the expense of new process studies on the old format. Some of the synthesis money could be spent for release time for top Biome scientists to spend several weeks concentrating on synthesis. It was understood that a synthetic effort represents an integration of results from a range of projects as opposed to a compilation of individual papers gathered together under an appropriate synthesis heading. In addition to this type of synthesis, Walt suggested that as a project is phased out, one of the investigators involved should be given a small amount of money to synthesize the information gathered from the total period of the project (see item 10 C of these minutes). Ben pointed out that such a scheme is being tested with Jim Reichman and the NAU rodent diet project.

The 1975 program should see a clearer delineation between studies and data contributing directly to model development and simulation and studies oriented to a non-modelling area of analysis. Dunc thought that some of the latter studies may be pertinent to inter-Biome comparisons in particular. It was also pointed out that an understanding of relationships between ecosystem components is as useful as precise data for developing the model. The Executive Committee supported the Directorate's plan to define what is being asked of the model so as to provide a focus for the level of resolution in the model, to set criteria for essential field measurements, and to make sure that the needs of the model are covered by the field research program. Several Coordinators expressed enthusiasm for sitting down with the Directorate and Chief Modeller to justify new process studies in the 1975 proposal.

#### 8. Third Biome Conference, 1974

Ben distributed a suggested program outline for the conference, which is to be held at the Ramada Inn, Salt Lake City, on March 20, 21 and 22. He explained the rationale behind this program in relation to the previous two Biome conferences. The program outline calls for 13 individuals to summarize, on the first day, the state of our research in particular fields, noting the degree of adequacy on the one hand and conspicuous gaps on the other. Dunc suggested that these reviews concentrate on 1973 research. Ben pointed out that relevant copies of 1973 reports will be sent to the nominated speakers as soon as the program is finalized.

The second day of the conference will be devoted to workshop sessions designed to hammer out the details of recommendations in the review papers. Workshop topics will reflect review topics of the first day, and may include other subject areas requiring discussion. The development of the modelling effort will be covered in the workshop sessions. The length and membership of the workshops may be variable, e.g., independent sessions on herbivory, granivory and detritivory may combine in the afternoon to examine the effect of all consumers on primary production. It was agreed that the objectives of each workshop will be clearly stated well in advance of the conference. Walt suggested that each workshop have interdisciplinary representation such that the representative from the related field leads the workshop as Chairman. It was acknowledged that wherever possible the size of workshops should be manageable in the context of the session objectives.

The third day of the conference will be a half-day plenary meeting culminating in an outside review of the program by Whittaker or Slobodkin. Bob Chew expressed a preference for Whittaker to give the review.

Ben suggested that the Directorate wait until Wednesday, January 9, before finalizing the program to give Executive members an opportunity to telephone in comments and suggestions. At the meeting, John suggested that Evans be assigned the review paper on physical flow of water.

The Executive agreed to adopt the same formula as used in 1973 for funding travel and expenses of Biome participants to the conference.

#### 9. Validation site evaluation

Jim reported little progress from the decision made at the Los Angeles Executive meeting to evaluate the validation sites. The first pass at evaluation was to be made on the basis of the validation reports which have only just now been made available. The Committee, consisting of MacMahon (Convenor), Patten and Chew, will meet within the next six weeks to begin the evaluation process.

## 10. Synthesis

IBP synthesis is being undertaken at several levels, inter-Biome efforts within the United States, international synthesis and synthesis of Desert Biome research results.

### A. Inter-Biome synthesis

Of the three inter-Biome synthesis tasks designated by the Biome Directors Committee, two have been assigned to members of the Desert Biome Executive: Dunc Patten and Jim MacMahon.

Dunc reported on the progress of the Committee examining primary productivity. Warren Webb of Oregon State University is being employed by the Committee to explore available data on plant metabolic processes dealing with primary productivity in each of the Biomes. From this review it is hoped the Committee will know what can be done with the data to compare primary production within life-form groups and along NS and EW gradients in the United States. In April, a proposal will be compiled by this Committee to fund a synthesis project based on Webb's review.

Responding to the need for a good description of the state of knowledge of underground processes, the Primary Productivity Committee organized an underground symposium last September at Fort Collins. A volume of the papers presented is currently being produced by John Marshall (Editor). These papers have received outside peer review by three or four people, and each section of papers is accompanied by a synthesis chapter. The volume also contains an overall introduction and an overall summary.

Jim MacMahon is chairing the Inter-Biome Synthesis Committee looking at the role of functional groups in ecosystem dynamics. The Committee only recently received money to hold their first meeting, which will occur within the next six weeks. The synthesis work will be limited to 12 leading scientists, each one assigned to a specific task and required to seek the necessary data and perform the desired synthesis. These individual operations will be reviewed by the group as a whole, final papers will receive peer review, and the Committee should complete the job in 18 months. Synthesis along these lines of developing correlations between functional groups and other parameters like energy flow, temperature gradients and species diversity, has already been initiated in the Desert Biome with regard to Sonoran shrubs, desert mammals and shrub-inhabiting spiders.



## B. International synthesis

At the taxonomic and process level, international committees have been operating for some time to bring together data on primary production, small mammals and social insects. Clive Jorgensen and Bob Chew have both attended international meetings on small mammals; Bob reported to the Committee on progress at the latest meeting, where papers were being perused for final publication. He noted that the format is a compilation of related papers rather than an attempt at full integration. Bill Nutting has participated in the meeting on social insects.

Ray Perry and David Goodall are editing a three-volume synthesis on the structure, function and management of desert ecosystems throughout the world. The list of contributing authors is international; a number of Desert Biome investigators are writing chapters for various sections. Hopefully, an arid lands symposium will be held next September in New Delhi based on material prepared for the synthesis volumes.

## C. National synthesis

The National Committee is planning for the eventual publication of 50 volumes synthesizing the entire research effort of the US/IBP program. Questions of quality control, means of publication and the appointment of a managing editor are still under consideration. The subject matter of volumes emerging from each Biome program is still being debated; for instance, the Grassland Biome wants to have a separate volume describing each of its sites but there is some uncertainty as to whether such a thorough treatment is warranted. The Desert Biome is already committed to two volumes and involved in their preparation, with authors appointed; water and nitrogen. Fred invited subject topics for other volumes.

Walt strongly recommended that we write a complete description of each site to be compiled in one volume for consumption by the non-academic communities. He and John cited the usefulness of such a document for government agencies and other organizations wanting baseline data for preparation of Environmental Impact Statements, for example. This would not be scientifically exciting but as a source book it would fulfill a useful service to the public. Jim reminded the meeting that when volume topics were discussed in a conference call early in 1973, a monograph on deserts of the United States summarizing validation site data was suggested, and another monograph on the role of animals in desert communities. Dunc recommended that a comparison of plant metabolic processes as they vary along abiotic gradients within American deserts be the subject matter of one of our monographs. In the months ahead, Fred will have to lead the Executive to final decisions and identification of authors for the Desert Biome synthesis volumes. It was suggested that each editor be paid \$1,000 for producing a volume.

The meeting discussed whether contributing authors should receive a stipend, but the concensus was that preparation of papers is a normal part of scientific research. The Biome could assist, however, with analysis of data and graphical expenses.

MOTION:

That the Biome adopt the policy of financial remuneration for investigators who are no longer funded by the Biome and are approached by the Directorate to write a synthetic paper.

Moved: Walt Whitford

The motion failed for lack of a seconder.

The motion appeared to fail because the Executive believe that negotiation for assistance to write synthetic chapters should be handled on the merits of each individual case. This would apply to Desert Biome volumes in the national synthesis series as well as to contributors to the Biome monograph series.

D. Desert Biome monograph series

Ben reported on the current status of contributions to the monograph series. A draft has been received from Fred Turner on the energy dynamics of *Uta stansburiana*, a draft is in preparation by Walt Whitford on a model of the Jornada playa, Jim Reichman has a draft synthesizing habitat resources, diets and reproduction behavior of Sonoran rodents in an advanced stage, David Goodall will update the Version III modelling reports to form a monograph, and a monograph on Sonoran termites is expected from Bill Nutting.

MOTION:

That for each monograph, the author nominate at least three consulting editors who would act as a peer review panel, be listed on the title page, receive honoraria, and be given a deadline for submitting the review.

Moved: Jim MacMahon  
 Seconded: Walt Whitford  
 CARRIED

It was understood by the Executive that the intent of the motion was to provide a separate panel for each monograph.

Ben reported that the current plan for publication of the monographs involved printing the book under the auspices of a university

Press and negotiating with a commercial publishing house to handle distribution, and probably charging a price for each copy. The Biome, with the USU Ecology Center, has decided to acquire a photo-typesetting machine which will produce manuscript copy of professional quality and will henceforth be used for annual reports and the monograph series. Budget limitations have forced us to take the most economical route to produce the monographs without compromising on standard of the finished product, and this means doing as much as possible in our own shop and with the USU Printing Services.

#### 11. The question of a pre-print series

Getting research papers into the open literature frequently involves a time delay between submission and publication of up to 27 months. In the meantime, many people would like to have access to the paper without having to wait so long. Investigators in the Grassland Biome submit publications simultaneously to the Journal and to Fort Collins, and the Biome then releases the publication within the Biome as a pre-print. The Desert Biome has one experience of difficulty with this procedure: permission was sought from the editor of the Annual Review of Ecology and Systematics to release as pre-prints, two papers submitted by Imanuel Noy-Meir which he had largely prepared while he was working with the Desert Biome, and permission was denied. As in the case of Dr. Goodall's paper delivered at the Athens Symposium, a more effective method would be to circulate a pre-print just prior to submission to a journal. Some Executive members, in particular Fred Turner, spoke against the development of a pre-print series, noting that a paper may experience many changes between the time of preparation and its final release in a journal. Irwin Ting believed that the operation of a pre-print series could degrade the standards of professional publication if distribution of the pre-print was taken out of the hands of the author. Jim recommended that the Central Office be notified of the title and author(s) of a paper submitted for publication at the time of submission, so that submitted papers could be announced in the Newsletter and interested parties correspond with the author for information.

As an alternative to publishing in a recognized ecological journal such as Ecology or Ecological Monographs, Bob Chew suggested that an issue of the monograph series be a compilation of occasional papers. He thought this would alleviate the problem of time delay before eventual publication and stressed that it would be an avenue of publication open to those individuals who could afford citations of obscure publication on their curricular vitae.

#### MOTION:

That the Desert Biome Monograph Series include publication of occasional papers in addition to regular monographs.

Moved: Bob Chew  
 Seconded: Fred Turner  
 CARRIED: 4 to 3 with 5  
 abstentions

Bob concluded that the strength of the voting was insufficient for adoption of the motion and requested that no action be taken.

Since the life of the Desert Biome is limited, Biome publication of scientific papers in the monograph series would only be a short-term and partial solution to the basic problem of the present overloading of existing recognized ecological journals. Ben suggested that a more lasting contribution the Desert Biome could make to dealing with this matter would be to promote and perhaps initiate a new ecological journal, entitled something like "The Journal of Arid Land Ecology", which would accommodate papers on applied ecology and arid land management as well as the type of paper being produced from Desert Biome research.

MOTION:

That Ben Norton look into the feasibility of establishing a periodical for arid land ecological research.

Moved: Bob Chew  
 Seconded: Gene Staffeldt  
 CARRIED

Dunc suggested that a first step might be to talk with the editors of the bulletin produced by the Southwest and Rocky Mountain Division of AAAS by the University of Arizona Press.

12. Persistence of IBP in the Biome title

After July, 1974, the International Biological Program will cease to exist. The US/IBP Biome programs will probably be transferred at that time from the aegis of N.A.S. to T.I.E. However, for convenience and continuity of the Biome programs, the initials of "IBP" will be retained in the title of the program.

13. Chapter overlap in international series

There was some discussion, largely between Fred Turner and Fred Wagner, about some real and apparent overlap between certain chapters in the International Synthesis Series. Fred Wagner described the history of the development of chapter headings at the meeting of the International Arid Lands Steering Committee at Logan, September, 1972. He pointed out that any conflict involving overlap should be handled at the editorial level and recommended that Fred Turner write to David Goodall about the problem.

The meeting adjourned with relief.