ESA AGENDA BRIEF

Title: ESA Publication Enterprise Presidential Committee

Presenter: George Kennedy

Background: See the attached report.

Relationship to Strategic Plan: Strategic issue1, goal E; strategic issue 3, goal E

Financial Implications: Major. See attached report.

Motion(s):

Motion 1. Continue to publish the 4 primary journals (*Annals, J. Econ. Entomol., Environ. Entomol., and J. Med. Entomol,).*

Motion 2. Adopt a new editorial structure in which each journal has one Editor-in-Chief, who receives an honorarium, plus a series of Subject Editors, and a board Associate Editors who do not receive honoraria.

Motion 3. Implement the following recommendations to decrease time from submission to publication, improve quality and consistency of reviews, and improve the author experience in publishing with ESA.

Motion 3a. Institute a computer-based manuscript tracking system that will allow submission of manuscripts directly to the editor-in-chief, but tracking of manuscripts and prompting of delinquent reviewers by ESA staff.

Motion 3b. Impose a 3-month limit on the time authors are permitted to revise a manuscript before the manuscript is considered withdrawn.

Motion 3c. Institute a policy of contacting potential *ad hoc* reviewers prior to sending manuscripts for review and of sending all manuscripts out to 3 reviewers to ensure that 2 reviews are obtained in a timely manner.

Motion 3d. Add to the recommendation options available to reviewers the category "*accept with major revision subject to review.*"

Motion 3e. Request that reviewers specifically address the positive features (strengths) as well as the weaknesses of the manuscript in their reviews.

Motion 3f. Adopt a separate set of review criteria for manuscripts submitted for publication in the *Forum* section of journals.

Motion 3g. Encourage increased synthesis and speculation in regular papers published in ESA journals.

Motion 3h. Establish a committee of individuals (perhaps a sub-committee of the ESA Committee on International Affairs) who are willing to assist authors whose 1st language is not English in bringing the writing up to standard prior to review. Editors receiving manuscripts in which the English is poor and for which the problem could jeopardize the review, could refer the author to one of the committee members for assistance in correcting the language before agreeing to submit the manuscript for review.

Motion 3i. Manuscript handling procedures at ESA Headquarters should be reviewed in detail on a regular basis with the objective of improving efficiency.

Motion 3j. Copyediting of manuscripts should be kept to a minimum ensuring meaningful standardization of format and clarity of meaning. Editors should not engage in copyediting.

Motion 4: ESA should continue to produce and sell subscriptions to print journals and paper reprints for as long as there is a demand for them and ESA can recover the costs of doing so.

Motion 4a: The price subscriptions to print journals and for paper reprints should be monitored and adjusted as necessary to ensure that the costs of print publications are covered by the revenue they receive.

Motion 5: Provide on-line access to all 4 ESA journals to all members as a benefit of membership. Charge members $15.00 for each subscription to print versions of the journals.

Motion 6: Increase subscription rates for institutions to a level that covers the fixed production costs for each journal. Institutional subscription rates should be raised 10% during each of the next 2 years to accomplish this. Subscriptions to print and on-line versions of the same journal should be de-coupled (i.e. an institution can subscribe to either version alone or to both). The rate should be the same regardless of whether the subscription is for an on-line journal or a print journal, but the rate for a combination of both on-line and print should be 150% of the price of a print subscription. No discounts should be provided for subscribing to more than one journal title.

Motion 7: Adopt a policy of increasing institutional subscription rates annually by an amount that covers increases in the fixed costs of production plus the cost of fulfilling the subscriptions.

Motion 8: Adopt a business model for ESA journals that provides authors with the opportunity to purchase immediate free web access to their articles (IFWA) for an additional fee that is adjusted upward to preserve net revenues as the number of subscriptions decline. The features of this model are:

- 4 journals each having the recommended editorial structure;
- editorial review charges (page charges) remaining at their current level;
- free on-line access to the 4 ESA journals by all members;
- continued sale of subscriptions to print journals as long as the revenues from such sales meet or exceed the costs associated with their production and sale;
- sale of subscriptions to institutions at a price that covers fixed production costs and fulfillment costs, as indicated previously

a fair but profitable fee to authors for unlimited, immediate, free web access to their articles.

Motion 9: ESA should monitor annually the revenue stream associated with the publication of each of its journals. Subscription rates, editorial review charges and IFWA charges should be adjusted as appropriate to reflect revenue targets.

Motion 10: ESA should investigate the advantages of affiliating with BioOne or other entities to expand the opportunities to include in ESA published articles links to articles published in non-ESA journals and to enhance the marketing of ESA's on-line journals.

Motion 11: The committee recommends that ESA adopt a policy of providing unlimited, free on-line access to journal back issues 2 years and older as quickly as fiscally feasible.

- Participation in PubMed Central (PMC) may provide a means to accomplish this at little initial cost and no continuing cost. We recommend that ESA initiate a pilot project to post 1998 and subsequent issues of its journals on PMC.

ESA should become a participant in the Cornell Core Bibliography Project, which may make PDF files of ESA journal articles from 1950 and earlier at no cost to ESA.

Motion 12: ESA should invest aggressively in increasing the array of value added features included in its on-line journals to maximize their value to members, authors, and the scientific community, and to maintain a competitive position relative to other entomology journals.

Motion 13: ESA should actively embrace opportunities to initiate new specialty on-line journals, but should not initiate new print journals.

Motion 13a: A protocol should be developed that establishes a mechanism by which members or other interested parties can propose a new journal and provides guidelines for evaluating proposals for new journals.

Motion 13b: Before a new journal is initiated a business plan should be established that includes a marketing plan for the journal, and benchmarks for the number of manuscripts published and for revenue.

Motion 14: ESA should immediately explore the possibilities of collaborating with Henry Hagedorn to initiate his proposed new on-line *Journal of Insect Physiology and Molecular Biology*. This likely to be a viable option only if the recommended changes are made in the editorial structure of ESA journals.

Motion 15: ESA should establish a designated capital fund to be used to enhance value-added features of on-line journals, initiating new journals, and upgrading technology used in publishing on-line journals.

Motion 16: Provided a market analysis is favorable, ESA should offer for sale year-end CD's containing all of the year's issues of all ESA journals. ESA should also explore the opportunities for selling back-issues of ESA journals on CDs.

Motion 17: Print publication of *Arthropod Management Tests* should be discontinued. *AMT* should be published on-line, and if a market analysis is favorable, on CD. In both cases, the material should be searchable by crop, pest, technique, and compound.

Motion 18: ESA should expand advertising in its on-line journals and in *Arthropod Management Tests* to increase net revenues. As a part of this, ESA should review and, if necessary, up-date its policy on advertising on-line and in its journals.

Person Responsible: Alan Kahan

Headquarters Analysis: Staff support all of the committee's recommendations.

Report of ESA Publication Enterprise Presidential Committee April 24, 2000

Committee: Thomas J. Walker, Leon Higley, Alan Kahan, and George Kennedy (chair).

Committee Charges: Conduct a thorough financial and efficiency analysis of the Society's publication enterprise and to bring forward a series of recommendations to improve the financial health and operational efficiency of the publications enterprise. In addition, the committee was instructed by President Quisenberry to specifically address the following issues:
1. Risks of de-coupling the requirement for both print and electronic subscriptions;
2. Merits of producing our journals on CD's
3. Editorial structure of ESA journals
4. Number and content of journals published by ESA
5. Initiation of new journals specializing on emerging areas – potentially published only on-line;
6. Advertising in on-line journals;
7. ESA's role in publishing books and other non-journal publications;
8. Financial implications of recommended actions and of continuing with the status quo.

Because of the time available to the committee and the magnitude of the charge, committee efforts to date have focused exclusively on issues pertaining to the publication of scientific journals and Arthropod Management Tests. Because of its unique nature, we have not included American Entomologist in our analysis nor have we addressed it in our recommendations. It is our intent to to present a report on non-journal publications (books and American Entomologist) to the Governing Board in time to be considered at its winter meeting.

Process Used: The committee conducted the greater part of its business by email. The chair met with ESA staff for 2 days in February to amass and summarize the current processes and finances associated with the publication of ESA journals. Based on this information and an analysis of alternative editorial and publication models in use by other publishers or likely to become important, the committee developed a number of alternative scenarios for the publication of ESA journals. The committee and ESA staff conducted a series of financial analyses of these scenarios. In early April, the committee met at ESA Headquarters to discuss the alternative scenarios, refine the financial analyses, and develop recommendations for improving the quality, efficiency, and financial basis of the ESA scientific journal publication enterprise. Our objective was to identify steps that will enable ESA to position its journal publication enterprise to improve its service to members and the scientific community, to grow in stature and accommodate the transition to on-line publication that is taking place throughout the journal publication industry.

Framework for Deliberations: The committee used as the framework for its deliberations the following principles that the Governing Board discussed at its June 1999 meeting and re-affirmed at its December 1999 meeting:

- ESA journals provide:
  - An outlet to authors for publication of scientific information
  - A source of scientific information for entomologists and the scientific community at-large
  - Professional visibility and a professional identity for ESA
- The principal role of ESA in the publication of primary literature is to provide a high level of quality assurance. The level of quality assurance that it provides for the primary literature in entomology directly influences ESA's professional visibility, professional identity, and

reputation. ESA is committed to continuing and enhancing its role in providing quality assurance for the primary literature.

- ESA should commit to a continued involvement in the production and dissemination of scientific information
- ESA recognizes the growing importance of high quality secondary literature (reviews and syntheses) as gateways to information in the primary literature. There is growing need for ESA to evaluate its possible role in providing quality assurance in the secondary literature as a prelude to taking action in that arena.
- ESA publications should be priced based on their value. As the value of secondary literature increases, it will likely become necessary to subsidize ESA's primary literature with revenues from publication of secondary literature.
- It is a goal of ESA that its scientific publication enterprise as a whole should not be revenue negative, although individual publications within that enterprise may be revenue negative. Each publication should have its own business plan that provides a basis for informed decision-making relative to all aspects of the publication. Business plans should have clearly identified benchmarks against which performance can be assessed.

In addition, the committee was unanimous in its agreement that the advantages of on-line publication to authors, publishers and the scientific community are such that within the foreseeable future, virtually all scientific journals will be published exclusively on-line. These advantages include but are not limited to:

- Reduced time to publication
- Inclusion of color, sound, and video in publications
- Publication of complete and operational quantitative models
- Reader access to complete data sets
- Ease of access to published articles
- Potential for unlimited distribution
- Low production and distribution costs relative to paper
- Minimal inventory cost for libraries (on-line journals do not require shelf space)

Despite these advantages, there will continue to be a demand for traditional printed copies of journals for some years to come. **Accordingly, the committee was unanimous in its belief that ESA should continue to publish paper versions of its journals as long as there is sufficient demand to pay the cost of doing so.**

Currently the most viable financial model to support on-line only publication of scientific journals is not clear. The most likely alternatives involve:

- Revenues generated by limiting access and selling subscriptions or subscription site licenses and/or by selling access to individual articles on a pay per view basis.

- Revenues generated by charging authors or authors' institutions for quality assurance and unlimited, immediate free web access to their articles by anyone.

Additional models may emerge as well. Thus, it is vital that ESA adopt a financial model for its journals that will preserve revenues and provide the flexibility to adopt the most viable financial model that is compatible with the needs of authors, journal users and the journal publishing industry as a whole. The recommendations of this committee are designed to accomplish this.

Current Situation: ESA currently publishes four primary scientific journals: *Annals of the Entomological Society of America, Journal of Economic Entomology, Environmental*

Entomology, and Journal of Medical Entomology. The journals employ a system of paid editors and a tiered system of subscription rates. Members receive one subscription to the printed journal of their choosing as a part of their dues. Members can subscribe to additional printed journals for $30.00 per journal. All four journals are also published on-line but members cannot subscribe to an on-line version of a journal unless they also subscribe to the print version of the same journal. On-line subscriptions to members cost an additional $15.00 per journal. Currently, ESA does not have back issues of its journals available on-line, so on-line subscriptions do not provide access to back issues.

Individual nonmember subscription rates are: *Annals* $84.00, *Journal of Economic Entomology* $95.00, *Environmental Entomology* $90.00, and *Journal of Medical Entomology* $84.00. Subscription rates for institutions are: *Annals* $162.00, *Journal of Economic Entomology* $194.00, *Environmental Entomology* $174.00, and *Journal of Medical Entomology* $162.00 and are low in comparison with most other journals (e.g. ESA average is $175.00 per journal; institutional subscription fees for many journals exceed $1000; fees for American Phytopathological Society journals are $325.00; on-line subscriptions for institutions are not available from APS).

Table 1. Subscriptions to ESA journals have been declining in number for several years:

Journal	1996	1997	1998	1999
Annals member	1514	1405	1274	1299
Nonmember*	840	814	806	745
EE member	2320	2146	2017	1906
Nonmember	753	727	722	657
JEE member	2720	2556	2346	2232
Nonmember	1157	1077	1040	939
JME member	1014	1026	965	944
Nonmember	492	474	447	420

* Includes institutions

Subscriptions to on-line journals were offered for the first time in 2000. The pricing structure for on-line journals, which requires a simultaneous subscription to the print journal, does not encourage members to subscribe to the on-line versions. Current (April 2000) subscriptions and associated revenues to on-line journals are:

Table 2. Subscriptions to ESA On-line Journals

Journal	Member	Student	Emeritus	Institution	Total
Annals	16	2	1	1	20
EE	41	1	1	3	46
JEE	68	4	1	3	76
JME	16	1	1	1	19
Total Subs.	141	8	4	8	161
Fee	$15	$15	$15	$80	----
Total Revenue	**$2115**	**$120**	**$60**	**$640**	**$2,935**

Editorial Structure and Processes: In contrast to most professional societies and commercial publishers, ESA employs a system of paid editors for each journal. There are a total of 15 editors: *Annals* 2, *EE* 4, *JEE* 6, and *JME* 3. **The expenses associated with this editorial structure are currently $112,700.00 per year.** The expenses budgeted for each editor in FY 2000 are:

Table 3. Budgeted Expenses for Editors

Expense Category	Amount ($)
Honorarium per editor	4,100
Secretarial assistance per editor	2,600
Postage per editor	720
Total per editor	**7,420**
Total for 15 Editors	***111,300***

**Note an additional $1400 is budgeted for travel by new editors to ESA Headquarters for training. This brings the total expenses associated with the current editorial system to $112,700.00 per year.*

Editors are expected to handle an excessive number of manuscripts per year (up to 7 per month or 84 per year) which span a broad range of subject specialties. This results in editors handling manuscripts that address subject areas in which they do not have expertise. The high workload and the breadth of subject matter each editor must deal with are impediments to consistent, timely, and informed reviews for all manuscripts. The high workload also makes it difficult for editors to advise authors on how they might provide major revisions to make a currently unacceptable manuscript acceptable. Nonetheless, ESA journals continue to be rated highly in impact among entomological journals by the Institute for Scientific Information.

Editorial Review (Page) Charges **-** Authors submitting manuscripts for publication in ESA journals are charged editorial review charges (page charges) if their manuscript is published. The charges vary depending on whether the author is an ESA member or not and whether the author provides an electronic copy on the manuscript on diskette. Editorial review charges are:

Table 4. Editorial review (page) charges for publication in ESA journals.

Category	Rate per page
ESA member, manuscript on disk	$48.00
ESA member, hard copy manuscript	$60.00
Nonmember	$75.00

Reprints **–** ESA sells both paper and on-line reprints (PDF files) to authors. Reprint sales constitute a significant source of net revenue (income $91,800 - expenses $48,420 = net $43,380). Currently most of the revenue is generated by sales of paper reprints (gross income from paper reprints = $82620 vs. $9180 for PDF reprints). ***Profit on paper reprints is only 1.7 times expenses, whereas profit on the sale of PDF reprints is 13.1 times expenses***. Clearly it is to ESA's advantage to vigorously promote the sale of PDF reprints over paper reprints.

PDF reprints offer the advantages of immediate, free and unlimited access to the article by anyone who wishes it. ESA has only recently begun to promote the sale of PDF reprints and currently does not facilitate access to PDF reprints by potentially interested readers. ***Until this is done, sales of PDF reprints cannot be expected to grow dramatically and the potential of PDF reprints to generate substantial net revenues for ESA will not be realized.***

Manuscript Flow **–** Authors submit manuscripts to ESA headquarters where they are logged in and assigned to an editor, and an acknowledgement sent author.. All copies of the manuscript are then sent to a journal editor (time: 1-2 weeks),

Journal Editor sends manuscript out to 2 reviewers (time: 2-3 weeks). All editors do not routinely contact prospective reviewers to determine their willingness to review the manuscript in a timely manner before the manuscript is sent.

Reviewers return the reviewed manuscript to journal editor (time with reviewers: 1 to 8+ months). If a reviewer does not return the manuscript in a "reasonable" (but not standard amount of time), the manuscript may be sent to an additional person for review. In the event of a split review, a 3rd review is often obtained.

Journal editor returns manuscript to author and notifies author of accept/reject/revise.

Author returns revised manuscript to journal editor. (time: variable). Currently there is no limit on the amount of time an author can take to revise a manuscript.

Journal editor notifies ESA of acceptance, rejection, or withdrawal and sends accepted manuscripts to ESA.

ESA production editor processes manuscript using *Editech*, a computer program that performs routine copyediting (2 days)

Copyediting for clarity at ESA (2 weeks)

Production editor codes for layout and typesetting

Manuscript sent to printer

Page proofs sent to production editor and author

Author returns page proof to production editor. Production editor incorporates author changes and proofs pages.

Edited proofs are returned to printer.

Final page proof sent to production editor

Final proof returned to printer and published journal is produced in a traditional hard copy and as a PDF files and HTML for the on-line version (time at printer 2 weeks)

TOTAL TIME between acceptance of a manuscript and publication = 150 days. *By comparison, the time between acceptance and publication of a manuscript submitted to the American Phytopathological Society journals averages 85 days.*

The time between submission of a manuscript to ESA and its publication are excessive and highly variable. The ratio of time spent with editors and reviewers/time at ESA HQ = 1.6

Table 5. Times to publication in ESA journals for articles appearing during 1999

Journal	Median # days	Range
Annals	327	171-730
EE	385	251-713
JEE	353	142-673
JME	357	185-832

Authors Perceptions of Publishing in ESA Journals – Publishing in ESA journals is widely perceived by members to be an unpleasant experience. The processes are perceived as being adversarial, costly, cumbersome, and unnecessarily time-consuming. Because of this, many respected entomologists do not publish in ESA journals or publish only a small proportion of their total manuscripts in ESA journals. There are numerous high-quality alternatives to ESA journals that compete directly with ESA for manuscripts and are less costly and less adversarial to authors.

With the exception of *Journal of Medical Entomology*, ESA journals are very broad in scope and do not provide reputable publication outlets for a number of the important scientific sub-specialties that constitute the primary focus of many of our members. Examples of subject areas for potential journals include insect biochemistry and molecular biology, plant/insect interactions, insect genomics, and entomological techniques; there are others. In the past, ESA has consistently refused to respond to requests to initiate new journals because of concerns that the new journals would draw papers from our established journals. This position is untenable because the disciplinary fragmentation and emergence of new sub-disciplines that is taking place

in science is creating a need for new, high-quality, specialty journals. Other publishers have met this demand in the past and will continue to do so. As they have in the past, authors publishing in ESA journals will switch to other journals that better suit their publication needs.

Current Budget for ESA Journals **–** We present in Table A1 the current budget for the publication of the 4 ESA journals. Income sources associated with subscriptions are defined as follows:

Institutions – subscriptions by library
Nonmember – subscriptions by nonmember individuals
Agents – subscriptions sold to institutions by an agent
Members add on –subscriptions by members that are in addition to the subscription that is included in the price of dues.
Students add on – same as member add on
On-line subscriptions – subscriptions to on-line versions of the journals.
Subscription transfer – amount of member dues allocated to the journal subscription that members receive with their membership.
Editorial Charges – page charges
Other sources are self –explanatory

Note that subscriptions (including the subscription transfer) and editorial charges constitute the major sources of income, followed by reprint sales. Total gross income from journals is $1,076,894.

Approximately 63% of the total production costs associated with the publication of journals represent fixed production costs. These can be thought of as representing the costs of producing the first copy of a publication; they are independent of the number of copies produced and the publication medium (print or on-line). Fixed production costs are those related to the editorial structure ($112,700), staff (salaries, benefits, FICA, and freelance copyediting: $188,930), and production costs (composition/litho and copyright fee: $182,370).

The remaining production costs are partitioned among on-line journals and print journals and reprints. Expenses that are associated with production of on-line journals are not affected by the number of copies. Total on-line production costs are $56,940. In contrast, the number of copies required has a direct effect on the remaining production costs for print journals due to the cost of paper, mailing, and postage associated with each additional copy produced. The production costs for print journals amount to approximately $7.68 per subscription per journal per year. The print production costs total $176,750. Additional production costs are associated with production of reprints. The production cost of print reprints (total $47,720) is affected by the number of reprints produced but the production of PDF reprints ($700) is not. The total expenses associated with ESA's current journal publication enterprise are $766,110).

The net profit from our scientific journals for FY2000 is estimated to be $310,784 ($1,076,894 - $766,110).

In developing our recommendations, we sought to as a minimum to maintain the same net revenue from the publication of scientific journals.

Recommendations

Recommendation 1: Continue to publish the 4 primary journals (*Annals, J. Econ. Entomol., Environ. Entomol., and J. Med. Entomol,)*.
Rationale: Although a case can be made that there is considerable subject matter overlap among the current ESA journals, consolidation of the journals into fewer journals is not advisable at this time. Each of the journals has a long history and a solid reputation. Each generates substantial revenue from subscriptions and a positive net income. Consolidation of the journals into fewer titles would reduce subscription income. Given the financial pressures on libraries at this time, it is not likely that the lost revenues could be recovered by increasing the subscription price to institutions. Further, each title commands loyalty and a sense of "ownership" by a significant portion of ESA membership. *Any attempt to eliminate a journal would risk alienating a significant portion of ESA members at a time when membership is declining and retention of student members through the transition to full membership is low.*

2. Adopt a new editorial structure in which each journal has one Editor-in-Chief, who receives an honorarium, plus a series of Subject Editors, and a board Associate Editors who do not receive honoraria.

Editor-in-Chief: an internationally recognized scientist who can bring prestige to the journal; oversees functioning of the editorial processes of the journal; selected by the editorial board with approval of the Governing Board; selects subject editors who must be approved by the editorial board; appoints associate editors (in consultation with subject editors); only handles reviews and makes accept/reject decisions on special categories of manuscripts (forum; letters, reviews; invited articles; commentaries); directs manuscripts to subject editors; receives honorarium of $5000 plus up to $3300 for secretarial assistance and funds to cover postage expenses.

Subject Editors: selected by editor-in-chief and approved by editorial board; select reviewers for and make accept/reject decisions on manuscripts in their subject area; have authority to over-rule recommendations of *ad hoc* reviewers, correspond with authors; do not receive honorarium, secretarial support, or reimbursement for postage expenses. Numbers vary depending on the major subject areas covered by the journal and the number of manuscripts submitted in each subject area. Numbers can be increased or decreased as needed. Should not be responsible for more than 20 manuscripts per year.

Associate Editors: Selected by editor-in-chief based on recommendations of subject editors; review manuscripts at the request of subject editors; do not have authority to accept or reject a manuscript; do not receive honorarium, support for secretarial assistance or reimbursement for postage expenses. Associate editors actually function as a board or reviewing editors who can be frequently used as reviewers by subject editors in lieu of or in addition to *ad hoc* reviewers. These are individuals known to provide timely, thorough, and objective reviews.

The Editor-in-Chief, subject editors and associate editors should be prominently identified on the journal's cover.

Terms of Service: All terms should be at least 3 years with the option for renewal. Terms should be staggered so that terms of all editors do not expire simultaneously.

Relationship to Existing Editorial Boards: The currently structured editorial boards should continue to exist and function in the selection and approval of editors as indicated above. Editorial boards should continue in their role of monitoring the quality of the journals and in suggesting approaches to improve journal quality, editorial efficiency, and author experience.

Rationale: The editorial system currently used by ESA is excessively expensive and imposes an unconscionable workload on editors. Further, the high workload and the breadth of subject matter each editor must deal with impede consistent, timely, and informed reviews for all manuscripts and make it difficult for editors to advise authors on how they might provide major revisions to make a currently unacceptable manuscript acceptable. The current system fosters neither high morale among editors nor a positive experience by authors. It also makes recruiting new editors difficult.

The proposed system addresses each of these problems by greatly reducing the costs of the editorial structure and the workload of each editor. Variations on the proposed structure are widely used by scientific journals and their viability and effectiveness have been proven. The system we recommend is modeled after that used by the American Phytopathological Society for each of its 3 journals. The system works well for APS. Although APS does not provide honoraria or an allowance for secretarial support and postage for any of its editors, we have recommended that the Editor-in Chief receive an honorarium of $5000 plus an allowance for secretarial support and postage because ESA has a long tradition of doing so. Abandoning that tradition may impede a timely transition to this new system. This is, however, a judgement call.

Adopting this system would reduce costs associated with the editorial structure of ESA journals from $112,700 to $38,800 (savings = $73,900) and result in a corresponding increase in net revenue from $310,784 to $384,684.

Table 6. Comparison of income and expenses between current editorial structure and recommended editorial structure.

Category	Total $	
	Current system	**Proposed system**
Income		
Subscriptions + dues transfer	648,774	648,774
Other income	428,120	428,120
Total income	1,076,894	1,076,894
Expenses		
Editorial	112,700	38,800
Staff	188,930	188,930
Fixed production costs	182,370	182,370
On-line production	56,940	56,940
Print production	176,750	176,750
Reprints (print & PDF)	48,420	48,420
Total Expenses	766,110	692,210
NET PROFIT	**310,784**	**384,684**

Current system involves 4 journals with 15 total editors receiving honoraria plus suppor.

Proposed system involves 4 journals each with one editor-in-chief who receives an honorarium plus support.

Increase in net income expected to result from adopting the proposed system: 23.8%.

The complete financial analysis associated adopting the proposed editorial structure is presented in Appendix A2. The advantages of this change over continuing with the current system are summarized in Table 6. *Note that all of our subsequent financial analyses assume that this change is adopted. If it is not, the projected net revenues in our analyses must be decreased by $73,900.*

Adopting the proposed editorial structure provides numerous opportunities to reduce the time between manuscript submission and publication, improve the quality and consistency of manuscript reviews, and improve the quality of the author experience. The next series of recommendations are directed at accomplishing these goals.

The committee does not recommend altering the structure or basic function of the existing editorial boards because they represent a mechanism for member oversight of the journals and member empowerment.

3. Recommendations for decreasing time from submission, quality and consistency of reviews and improving the author experience.

a. **Institute a computer-based manuscript tracking system that will allow submission of manuscripts directly to the editor-in-chief, but tracking of manuscripts and prompting of delinquent reviewers by ESA staff.**
Rationale: This would eliminate up to 2 weeks from time to publication and improve efficiency. It would reduce handling of manuscripts by staff and mailing costs. However, the system would almost certainly entail additional expenses.

b. **Impose a 3-month limit on the time authors are permitted to revise a manuscript before the manuscript is considered withdrawn.**
Rationale: Time required by authors to make revisions is a significant and at times excessive. A 3-month time limit for revising a manuscript does not impose an onerous burden on authors and allows the publication process to proceed in a reasonable manner. The editor-in-chief could be given the power to extend this time limit in cases where it imposes undue hardship and an extension is clearly justified.

c. **Institute a policy of contacting potential *ad hoc* reviewers prior to sending manuscripts for review and of sending all manuscripts out to 3 reviewers to ensure that 2 reviews are obtained in a timely manner.**
Rationale: The will improve the rate of return of reviews, ensure that 2 reviews are obtained in a timely manner, and provide a 3rd review that would help subject editors reconcile conflicting reviews.

d. **Add to the recommendation options available to reviewers the category *"accept with major revision subject to review."***
Rationale: Under the present manuscript review policies, reviewers have the option of recommending Accept, Accept with Minor Revision, Accept with Major Revision, or Reject. Once a manuscript is rejected, it cannot be resubmitted to any ESA journal. Under this policy, the only option available to an editor faced with a manuscript that reports scientifically sound results but requires very extensive re-working or reanalysis of data, is to ask the author to withdraw the manuscript. If the author does this, the reworked manuscript must then be re-submitted as a new paper and must go through the entire review process a second time. By changing this policy the editors would have the option of working with authors to correct flawed manuscripts that report sound and interesting information. This change would enhance the authors

experience and could allow ESA to capture solid manuscripts that are now published elsewhere.

e. **Request that reviewers specifically address the positive features (strengths) as well as the weaknesses of the manuscript in their reviews.**
Rationale: Presently, it is rare that reviewers of ESA manuscripts address the positive aspects of the manuscripts. Near total focus on the negative can not only interfere with a balanced perspective on the part of the reviewer and the editor, but also alienate the author. Adopting this approach could serve to improve the quality of the reviews and to improve the authors' experience when publishing in ESA journals. This, in turn, could lead to an increase in the number of manuscripts submitted to ESA journals.

f. **Adopt a separate set of review criteria for manuscripts submitted for publication in the *Forum* section of journals.**
Rationale: The *Forum* section was established to encourage the submission of speculative articles, theoretical treatments, and syntheses. Currently, articles appearing in the *Forum* are impossible to distinguish for conventional research articles appearing elsewhere in the journals. If the *Forum* section is to fulfill its intended role, speculative articles, theoretical treatments, and syntheses must be encouraged, not discouraged. Reviewers currently treat *Forum* manuscripts the same way they treat conventional research papers. Because current ESA editorial standards (stated or not) discourage speculation, papers of the type the *Forum* was implemented to encourage, do not fare well in the review process. A clear message has been sent and few authors are willing to submit speculative articles, theoretical treatments, and syntheses to ESA journals.

g. **Encourage increased synthesis and speculation in regular papers published in ESA journals.**
Rationale: For a variety of reasons papers published in ESA journals tend to be highly focused on the specific details of the reported results. Most papers fail to provide an adequate synthesis of the literature to place the problem or hypothesis being addressed in a broader scientific and practical context, and most similarly fail to discuss the results within the broader context or to speculate on the broader implications of the findings.

Speculation that is clearly identified as such and synthesis enhance the quality of a paper. They broaden its appeal to scientists working in other related disciplines and they increase the value of the paper to scientists working in the same discipline by providing context and a gateway to other relevant literature. As the amount of information continues to increase exponentially, synthesis and context become increasingly important to grasping the significance of any particular piece of information.

As on-line publication becomes increasingly sophisticated and hot links are included between reference citations in journal articles and the cited articles, the value of individual research papers as gateways to relevant scientific literature will increase greatly. Authors must be given reasonable latitude to synthesize literature and to speculate if this potential value is to be fully captured.

h. **Establish a committee of individuals (perhaps a sub-committee of the ESA Committee on International Affairs) who are willing to assist authors whose 1st language is not English in bringing the writing up to standard prior to review.**

Editors receiving manuscripts in which the English is poor and for which the problem could jeopardize the review, could refer the author to one of the committee members for assistance in correcting the language before agreeing to submit the manuscript for review.
Rationale: ESA journals contain relatively few articles by foreign authors. The cost of publishing in ESA journals is a major factor. However, language issues also contribute to an unpleasant experience for foreign authors. Adopting his recommendation would improve the experience of foreign authors and may encourage additional submissions by foreign authors.

i. **Manuscript handling procedures at ESA Headquarters should be reviewed in detail on a regular basis with the objective of improving efficiency.**
Rationale: Regular review of procedures will ensure that procedures continue to fulfill their purpose efficiently and that technological innovations can be incorporated as appropriate to improve efficiency.

j. **Copyediting of manuscripts should be kept to a minimum ensuring meaningful standardization of format and clarity of meaning. Editors should not engage in copyediting.**
Rationale: In the past, excessive copyediting has been a source of irritation to authors and has delayed author revisions. With the introduction of computerized copyediting by *Editech* and a change in the copyediting philosophy to emphasize formatting and clarity of meaning, considerable progress has been made. However, an official policy guiding the level of copyediting that will be done by ESA will institutionalize this change. Adopting such a policy will improve the authors' experience. Discouraging copyediting by journal editors will increase the uniformity of copyediting by ESA and will help to minimize editors' workloads.

Recommendations Pertaining to On-line Journals

The committee is unanimous in its belief that the predominant publication medium for scientific journals in the future will be on-line because of the tremendous advantages and lower costs associated with on-line publication. ESA should encourage the switch to on-line journals by charging fees for on-line and print publications that reflect the true costs of each. The committee believes that it should be a goal of ESA to provide immediate, free, and unrestricted access by all interested parties to articles published in its journals. The committee also believes that this should be done in a manner that does not jeopardize the financial integrity of the ESA. The following recommendations are designed to allow ESA to make on-line publication the predominant medium for ESA journals and move toward providing immediate free web access to its journal articles (IFWA) in a financially sound way.

Recommendation 4: ESA should continue to produce and sell subscriptions to print journals and paper reprints for as long as there is a demand for them and ESA can recover the costs of doing so.
Recommendation 4a: The price subscriptions to print journals and for paper reprints should be monitored and adjusted as necessary to ensure that the costs of print publications are covered by the revenue they receive.
Rationale: These recommendations recognize that the future lies in on-line publication but that there will continue to be a demand for print journals well into the future. In all likelihood, there will come a time when income from sale of print journals will not cover the cost of producing

them. When this will occur is not clear. Hence, net revenues associated with production and sale of print journals should be closely monitored and subscription rates adjusted to ensure the costs of print publications are covered by the income they generate. When the number of subscriptions to print journals declines to a level that will no longer support the cost of producing print journals, production of print journals should be discontinued.

Recommendation 5: Provide on-line access to all 4 ESA journals to all members as a benefit of membership. Charge members $15.00 for each subscription to print versions of the journals.

Rationale: It is clear that on-line publication will constitute the primary medium for scientific journals in the future. Although ESA has begun to offer its journals on-line, current pricing policies emphasize print publication. The current policy of offering a subscription to one print journal as a benefit of membership places emphasis on print journals at a time when the industry is moving rapidly toward on-line publication and younger members are increasingly oriented to obtaining information on-line. In addition, ESA costs associated with subscriptions to print journals increase with each additional subscription (approximately $7.68 per subscription per journal after fixed production costs are met). In contrast, there is no additional cost over the fixed production costs associated with additional subscriptions to on-line journals. ESA's current policy of providing subscription to a print journal to each member, maximizes expenses. It also prevents ESA from providing subscriptions to more than one journal to members as a benefit of membership because of the added cost of doing so. The current policy of allowing subscriptions to on-line journals only if the subscriber has a subscription to the print version of the same journal and charging an additional fee of $15.00 for the on-line subscription serves to discourage growth in on-line subscriptions.

ESA should be doing everything in its power to encourage on-line subscriptions and discourage paper subscriptions because on-line subscriptions generate more net revenue. Once the fixed production costs have been met, there are no additional costs associated with additional subscriptions.

Because adding on-line subscriptions does not increase costs to ESA, there is no additional cost associated with providing all members free on-line access to all 4 of the ESA journals as a benefit of membership. The committee sees this as a tremendous increase in member benefits, which does not increase costs to ESA. Further, it signals to ESA members and the larger scientific community that ESA sees that the future of journal publication is on-line. It also recognizes that younger scientists, who represent the future of ESA, are increasingly oriented to obtaining information on-line.

Because there is and will remain for some years a demand for print journals, members should be given the option of purchasing subscriptions to print journals for $15.00 per journal. This is the price currently charged for an on-line subscription and is one half of the price charged for each add-on subscription to a print journal. If this pricing structure is adopted, a member could receive 2 print journals per year for $30.00, which is the price of 2 print journals under the current pricing system (one journal with membership plus a second for $30.00).

The financial analysis is summarized in Table 7 and presented in detail in Appendix B1. That analysis assumes:

- that the new editorial structure is in place;
- dues remain at their current level;
- the amount of dues allocated to journal subscriptions remains at the current level
- member subscriptions to print journals cost $15.00 per journal
- member subscriptions to print journals drop by 50%
- no students subscribe to print journals.

Table 7. Financial consequences of providing members with on-line access to all ESA journals as a benefit of membership and charging $15.00 for each subscription to a print journal. Analysis assumes only 4 editors -in-chief receive honoraria and support.

Category	Total $	
	Members receive 1 print journal	**Members receive access to all on-line journals**
Income		
Subscriptions + dues transfer	648,774	615,489
Other income	428,120	428,120
Total income	1,076,894	1,043,609
Expenses		
Editorial	38,800	38,800
Staff	188,930	188,930
Fixed production costs	182,370	182,370
On-line production	56,940	56,940
Print production	176,750	164,354
Reprints (print & PDF)	48,420	48,420
Total Expenses	692,210	679,814
NET PROFIT	**384,684**	**363,795**

Under this scenario, gross income declines relative to the current situation by $33,285 because of a reduction in add-on print subscriptions by full and student members. Fixed production costs remain unchanged, but costs associated with printing, paper and mailing of print journals decline by $12,396. This does not offset the reduced revenue associated with reduced subscriptions. Consequently, the net revenue drops by approximately $20,889 (to $363,795 in a scenario that includes the revised editorial structure). The worst case situation under this scenario would be that all full and student member subscriptions to print journals are lost. In that situation, net reduced by an additional $24,360, bringing net revenues down to $329,435. Note that this is still $18,651 more than the projected net income under ESA's current editorial structure and subscription model.

Recommendation 6: Increase subscription rates for institutions to a level that covers the fixed production costs for each journal. Institutional subscription rates should be raised 10% during each of the next 2 years to accomplish this. Subscriptions to print and on-line versions of the same journal should be de-coupled (i.e. an institution can subscribe to either version alone or to both). The rate should be the same regardless of whether the subscription is for an on-line journal or a print journal, but the rate for a combination of both on-line and print should be 150% of the price of a print subscription. No discounts should be provided for subscribing to more than one journal title.

Recommendation 7: Adopt a policy of increasing institutional subscription rates annually by an amount that covers increases in the fixed costs of production plus the cost of fulfilling the subscriptions.

Rationale: Institutional subscription rates charged by ESA average $175 per journal and are far below that charged by other publishers for comparable journals. ESA institutional subscription rates have not been adjusted routinely to reflect increases in costs. The average price charged to

institutions for journal subscriptions (overall) has increased 10% per year during most of the last decade. To offset the costs of shifting to online publication and to provide a financial buffer during the transition to all on-line journals, institutional subscription rates should be set so that, as a minimum, they cover all fixed production costs for the journals plus the costs of fulfilling the institutional subscriptions. At present, these costs total $208 per subscription. Once this is achieved, the rates should be adjusted annually to reflect changes in the costs of production and fulfillment. A 10% increase in subscription rate in 2001 would raise the average subscription price to $193. Another 10% increase in rate in 2002 would raise the average price to $212 per subscription, a price that would provide some buffer against lost subscriptions due to increased prices. Raising institutional subscription rates by 10% during each of the next 2 years will be consistent with the price increases expected for other journals. At $193 in 2001 and $212 in 2002, ESA journals will continue to rank among lower priced journals.

The financial analysis for this change is summarized in Table 8 and presented in detail in Appendices B2 and B3. The assumptions are the same as described under recommendation 4, with the exception that institutional subscriptions increase by 10% in 2001 (to $193) and in 2002 (to $212) for either a print journal or an on-line journal. In addition, the fee for both an on-line and print subscription to the same journal is set at 150% of the price of only one form of the journal (i.e. purchase both forms for an additional $97 in 2001 and 106 in 2002).

Adopting this recommendation does not change any of the expenses and would increase net revenue by $62,682 in 2001 and by a total of $110,605 in 2002, relative to free on-line access to members plus a change in editorial structure. **The increase in revenue over the current editorial and pricing structure would be $110,693 in 2001 and $163,816 in 2002 (see Table 6 and Appendix A1 for figures on current structure).**

Table 8. Financial consequences of increasing institutional subscription fees by 10% in 2001 and again in 2002, in addition to providing members with on-line access to all ESA journals as a benefit of membership and charging $15.00 for each subscription to a print journal. Analysis assumes only 4 editors-in-chief receive honoraria and support.

	Members receive all on-line journals; institutional fees unchanged	**Institution fees increase 10% in 2001 and 2002**	
Income		**Revenue 2001**	**Revenue 2002**
Subscriptions + dues transfer	615,489	678,171	726,294
Other income	428,120	428,120	428,120
Total income	1,043,609	1,106,291	1,154,414
Expenses			
Editorial	38,800	38,800	38,800
Staff	188,930	188,930	188,930
Fixed production costs	182,370	182,370	182,370
On-line production	56,940	56,940	56,940
Print production	164,354	164,354	164,354
Reprints (print & PDF)	48,420	48,420	48,420
Total Expenses	679,814	679,814	679,814
NET PROFIT	**363,795**	**426,477**	**474,600**

Recommendation 8: Adopt a business model for ESA journals that provides authors with the opportunity to purchase immediate free web access to their articles (IFWA) for an additional fee that is adjusted upward to preserve net revenues as the number of subscriptions decline. The features of this model are:

- **4 journals each having the recommended editorial structure;**
- **editorial review charges (page charges) remaining at their current level;**
- **free on-line access to the 4 ESA journals by all members;**
- **continued sale of subscriptions to print journals as long as the revenues from such sales meet or exceed the costs associated with their production and sale;**
- **sale of subscriptions to institutions at a price that covers fixed production costs and fulfillment costs, as indicated previously**
- **a fair but profitable fee to authors for unlimited, immediate, free web access to their articles.**

Rationale: This model recognizes that providing unlimited, immediate, free web access (IFWA) to journal articles is a worthwhile goal for a scientific society such as ESA and that IFWA has a market value. It also recognizes that IFWA, paid for by authors and/or their institutions, may become the prevailing business model for scientific journals. If IFWA becomes the prevailing model, revenues from subscriptions will eventually drop to zero. If it does not, become the prevailing model, it is likely that subscription revenues will continue at some level in combination with IFWA for some articles paid for by the author. An alternative source of revenue that might become common would be fee-based access by readers to individual articles (pay per view). The committee does not consider the pay per view model as likely to predominate, but the model that we propose does not preclude inclusion of pay per view, should that be considered appropriate at a later date. The model we propose provides ESA with the flexibility to move as far towards IFWA as the revenue stream will allow without committing ESA irrevocably to a particular end-point. Should a restricted access model prevail in which revenues are generated by institutional subscriptions (or through pay per view), ESA can continue to maintain its net revenues from journals. Similarly, should an IFWA model prevail, ESA will be able to maintain a reasonable net return from the publication of its journals.

It is important to recognize that the prevailing business model will not be determined by ESA. It will be determined by the journal publishing industry as a whole, as well as scientists who publish and read the literature, and libraries, which purchase subscriptions and maintain (at great cost) collections of scientific literature.

It is also important to recognize that ESA currently sells IFWA to its authors in the form of PDF reprints (electronic reprints). ESA authors now have the option of purchasing an unlimited supply of PDF reprints for 75% of the price of paper reprints. Once posted on the ESA server, these reprints are available to anyone who wishes to read or download them. This is IFWA. The transitional business model we are recommending will be in place if all of the previous recommendations are adopted. What is required to make this model function to ESA's best advantage is to regularly adjust the prices of IFWA to offset reductions in the number of institutional subscriptions, should that reduction occur.

It is essential to understand the context in which we are recommending this transitional business model. The key elements that will shape the prevailing business model for scientific journals include:

- In the relatively near-term, library subscriptions to on-line journals are likely to increase. On-line subscriptions allow libraries to eliminate most of the high costs associated with maintaining paper volumes on shelves (estimated to be $18.00 per year per volume,

excluding the initial cost of providing the shelf space). They also allow libraries to provide access to their journals 24 hours a day and to more effectively serve users located at a distance from the library. Libraries are just beginning to recognize the clear advantages of on-line publications.

- As library subscriptions to on-line journals increase, individual subscriptions will decline because the journals will be available to most users on-line through their library's site-license. This is the reason that ESA must establish a fee structure under which revenue from institutional subscriptions meet or exceed the fixed costs of production.
- The demand for print journals will decline to the point that it will not be financially viable to continue to produce them for sale.
- Because corporate publishers who are interested in making a profit publish most journals, the costs of library subscriptions may continue to rise as they have in the past. Prices have already reached a level that is causing libraries to cancel subscriptions. This is leading to fewer locally held titles and less convenient, less complete access to journals.
- Restricting access to on-line journal articles has costs associated with it for both publishers and libraries (e.g. need for help desks, maintenance of subscription and access lists, costs associated with collecting fees for pay per view).
- Benefits of IFWA are great, from the perspectives of both authors and users. (Anyone with an interest can have immediate Web access.) As literature indexes go on-line, the desirability and value of free links to the full text of "hits" becomes evident.
- Because authors are interested in having the widest possible access to their published works, many authors will be willing to pay a premium to provide unlimited, immediate, free web access to their articles. If enough authors opt to pay this premium, the need for libraries to maintain subscriptions to journals will decline. Libraries could continue to fulfill their current role by maintaining site licenses to literature indexing services that provide direct links to the articles they index.
- IFWA is the only known way to achieve a seamless web of journal articles through hotlinks among journal articles and with literature indexes. Such a seamless web meets the need of researchers and students, the users of scientific literature, far better than any form of limited access.

Because it is not clear which business model will prevail, it is vital that ESA adopt a model that provides maximum flexibility to accommodate all foreseeable changes in the prevailing journal access business model.

It is important to understand the implications for ESA if there is a demand only for on-line journals (i.e. production of print journals is no longer viable financially) or if the IFWA model prevails (i.e. there is no demand for institutional subscriptions because current literature is freely accessible to everyone wanting to use it). To illustrate the financial ramifications of each of these scenarios we have conducted financial analyses that assume:

- Only on-line journals are produced; print journals are no longer offered, there are no expenses and no income associated with print journals;
- ESA continues to publish 4484 journal pages per year (# pages published in 1999);
- Membership is considered to hold steady at current levels:
- Income from advertising is considered to be $0.00, although the potential exists for advertising to be a significant source of income;
- If a paid access (subscription) model prevails, income from editorial review (page) charges continues at the current average level of $50 per page and revenues from PDF reprints (sales of IFWA) continue to average $20 per page; institutional subscription rates are considered to be $212 per journal, reflecting 2 years of 10% increases;

- If the IFWA model prevails, all articles allow unlimited, immediate free web access by anyone wishing to view the article. Revenue from reprint sales (both PDF and print) is zero because with free web access, there is no demand for reprints. The editorial review charges, which include IFWA charge, are $ 75, 100, or $125 per page.

The outcome of these financial analyses are summarized in Table 9 and the detailed analysis is presented in Appendix C. Under the paid access or subscription model with only on-line publication, both gross income and expenses would decline due to the elimination of print journals. However, because the decline in expenses is greater than the decline in income, the net revenue would be expected to remain high ($519,763.00).

Should the IFWA model prevail, there would be no income from subscriptions and, in the absence of revenue from advertising, the only source of income would be editorial review charges (page charges); hence, gross income will decline dramatically. Expenses, however, would not be expected to decline. As a result, net income would drop to only $6,764.00, if page charges are set at $75.00 per page and the number of pages published per year does not increase. Page charges of $75.00 per page represent an increase of only $5.00 per page over the current average fee of $50.00 per page editorial review charge plus the current average charge of $20.00 for PDF reprints, which provide IFWA of the purchased article. If page charges are increased to $100, or $125, the net income would be expected to increase to $118,864 or $230,964, respectively.

Table 9. Comparison of Subscription Only and Unlimited, Immediate Free Web Access Only Publication Models if Only On-line Journals are Published (see Appendix C for full details).

	Subscription (paid access)	**IFWA with page charge of**		
		$75	**$100**	**$125**
Gross Income	$986,814	$473,815	$585,915	$698,015
Total Expenses	$467,051	$467,051	$467,051	$467,051
Net Income	$519,763	$6,764	$118,864	$230,964

An alternative way to increase net revenues is to increase the number of pages published per year in ESA journals. The increase in net revenues that results from additional pages is maximized with on-line publications. The effect on net income resulting from increasing the number of pages published annually is illustrated in Table 10. Assumptions of the analysis were the same as listed above except that page charges were set at $100.00 per page.

Table 10. Increase in Net Revenue Resulting from Increasing the Number of Pages Published per Year When Only On-line Journals are Published and Page Charges are $100.00 per Page.

% Increase in pages published	**Number of pages published**	**Net Income**
0	4,484	$118,864
10	4,932	$145,502
20	5,381	$172,199
30	5,829	$198,837
40	6,278	$225,535
50	6,726	$252,173
60	7,174	$278,811

It is apparent from this analysis that even a modest increase in the number of pages published annually results in a significant increase in net revenues. We believe that adopting the recommended changes in the editorial structure and editorial processes to make ESA journals more author-friendly will help to elevate the stature and appeal of ESA journals. This should lead to an increase the number of manuscripts submitted for publication. It should be a goal of ESA to increase the number of pages published annually in its journals without compromising the scientific quality of its journals.

Recommendation 9: ESA should monitor annually the revenue stream associated with the publication of each of its journals. Subscription rates, editorial review charges and IFWA charges should be adjusted as appropriate to reflect revenue targets.
Rationale: Because the relative demand for print and on-line journals and for on-line subscriptions and for IFWA will change over time, it will be essential for ESA to regularly adjust charges for its print and on-line subscriptions and for IFWA to ensure that net revenues are protected. ***Failure to do this could jeopardize the financial viability of ESA.*** The spreadsheets used to conduct the financial analyses included in this report provide a suitable, readily understandable format for these analyses.

Recommendation 10: ESA should investigate the advantages of affiliating with BioOne or other entities to expand the opportunities to include in ESA published articles links to articles published in non-ESA journals and to enhance the marketing of ESA's on-line journals.
Rationale: One of the greatest potential value-added features of on-line journals is the inclusion of hot-links between references cited in an article and the abstract or full text of the cited article. From a reader's perspective, this greatly facilitates exploring the literature relating to any given article. Because a great deal of literature relating to articles published in ESA journals appears in journals published by other scientific societies and private publishers, links among articles that do not extend beyond ESA journals do not capture the full potential value of this feature. To remain competitive with private publishers of entomology journals, ESA will have to expand its linkages to include articles in non-ESA journals. Scientific societies are beginning to establish consortia to facilitate linkages among articles published in their various journals and to enhance their ability to market on-line journals to institutions. BioOne represents one such consortium, there may be others.

Recommendation 11: The committee recommends that ESA adopt a policy of providing unlimited, free on-line access to journal back issues 2 years and older as quickly as fiscally feasible.

- **Participation in PubMed Central (PMC) may provide a means to accomplish this at little initial cost and no continuing cost. We recommend that ESA initiate a pilot project to post 1998 and subsequent issues of its journals on PMC.**
- **ESA should become a participant in the Cornell Core Bibliography Project, which may make PDF files of ESA journal articles from 1950 and earlier at no cost to ESA.**

Rationale: The financial value of ESA's journals lies in the most current volume, not in past volumes. Providing free web access to issues 2 years old and older will not jeopardize current revenues. Allowing free and unlimited access to back issues of ESA journals will provide an important new service to members and enhance the free flow of information for the scientific community and society in general. The NIH PubMed Central project provides a mechanism for doing this at potentially minimal cost to ESA, especially for those issues for which SGML has already been done. If problems arise with using PMC, alternative approaches should be investigated including posting PDF files on other free-access servers that will permanently post at no charge. For example, the Florida Center for Library Automation has offered ESA this service.

Recommendation 12: ESA should invest aggressively in increasing the array of value added features included in its on-line journals to maximize their value to members, authors, and the scientific community, and to maintain a competitive position relative to other entomology journals.

Rationale On-line publication offers the potential to provide a vast array of valuable features that cannot be included in print journals (e.g. color (at no additional cost); sound, video; hotlinks to operational computer models and/or complete data sets; hotlinks to home page of vendors identified in the methods sections of papers; hotlinks to cited articles). Offering these value-added features, potentially at additional charge to the author, will enhance the competitive position of ESA journals relative to other entomology journals and will maximize their value to members, authors, and the scientific community.

Recommendation 13: ESA should actively embrace opportunities to initiate new specialty on-line journals, but should not initiate new print journals.

Recommendation 13a: A protocol should be developed that establishes a mechanism by which members or other interested parties can propose a new journal and provides guidelines for evaluating proposals for new journals.

Recommendation 13b: Before a new journal is initiated a business plan should be established that includes a marketing plan for the journal, and benchmarks for the number of manuscripts published and for revenue.

Rationale: Entomology, like other scientific disciplines, is becoming fragmented as new areas of specialization emerge. The current ESA journals do not provide the visibility necessary to attract manuscripts in many established, specialized, entomological disciplines and will not meet the needs of emerging disciplines. ESA has a long history of missing opportunities to initiate new journals because of a fear that they would compete with established ESA journals. A consequence of this has been that private publishers have initiated successful, competing, specialty journals, which better meet the needs of many ESA members and other potential authors than ESA journals. ESA can no longer afford to be so provincial.

All new journals should be published only on-line because the annual costs associated with on-line journals are substantially lower than for print journals. Further, over time, print journals will be replaced by on-line journals.

Rcommendation 14: ESA should immediately explore the possibilities of collaborating with Henry Hagedorn to initiate his proposed new on-line *Journal of Insect Physiology and Molecular Biology.* This likely to be a viable option only if the recommended changes are made in the editorial structure of ESA journals.

Rationale: This journal would serve members in Section B, who have long articulated a need for such a journal. ESA has steadfastly refused to address this need. There are problems associated with the journals currently serving this area and it appears that an opportunity exists for ESA that would help to solidify its relevance to an important subdiscipline of entomology.

Recommendation 15: ESA should establish a designated capital fund to be used to enhance value-added features of on-line journals, initiating new journals, and upgrading technology used in publishing on-line journals.

Rationale: If ESA is to remain relevant as a publisher of primary scientific literature, it must remain competitive for high quality manuscripts. Accomplishing this will require an ongoing commitment to providing a competitive offering of value-added features in all of the scientific journals and to maintaining technological currency in the journal publishing enterprise. Meeting this commitment will require a periodic and timely investment of funds. These investments represent an investment in the future of ESA as a publisher of primary scientific literature.

We suggest that this capital fund be established as quickly as possible and that a portion of the funds be used to make back issues of ESA journals freely accessible on-line to all. We further suggest that a portion of the funds be used as start-up capital to enhance the value-added features of on-line journals and to initiate new on-line journals.

Recommendation 16: Provided a market analysis is favorable, ESA should offer for sale year-end CD's containing all of the year's issues of all ESA journals. ESA should also explore the opportunities for selling back-issues of ESA journals on CDs.
Rationale: At least in the near-term, there may be a significant market for CD's containing the current years' issues of all ESA journals, issued at the end of the volume year. The American Phytopathological Society currently offers such CDs of its journals. CDs offer the advantage of being searchable, portable, and not requiring an internet connection. They also require very limited space for storage. Even after use of on-line journals becomes widespread, a market for CD's may continue to exist.

Recommendation 17: Print publication of *Arthropod Management Tests* should be discontinued. *AMT* should be published on-line, and if a market analysis is favorable, on CD. In both cases, the material should be searchable by crop, pest, technique, and compound.
Rationale: By its nature, the information contained in *AMT* is highly suitable to on-line publication, and the advantages of rapid searching offered by on-line and CD publication would enhance the value of *AMT*. There are also significant cost advantages of discontinuing the print version of *AMT*.

Recommendation 18: ESA should expand advertising in its on-line journals and in *Arthropod Management Tests* to increase net revenues. As a part of this, ESA should review and, if necessary, up-date its policy on advertising on-line and in its journals.
Rationale: On-line publications offer new and expanded opportunities for generating revenue from advertising and many forms of advertisements provide a service to readers. For example, inclusion of hot-links to homepages of vendors identified in the methods sections of articles should prove of value to both vendors and readers. The current policy on advertising on-line and in journals was re-affirmed in 1998 before ESA journals were published on-line and without consideration of unique opportunities for non-intrusive forms of advertising on-line. That policy prohibits inclusion of advertisements between the covers of ESA journals. It should be revised to reflect emerging opportunities to capture additional advertising revenues.