

Division of Invertebrate Zoology

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DIZ Officers & Representatives

John Zardus
Chair 2015-2018

Sarah Berke
Secretary 2016-2019

Bruno Pernet
Program Officer 2014-2017

Jenna Moore
*Student Postdoc Representative
2014-2017*

Jennifer Burnaford
*Libbie Hyman Memorial Scholarship
Committee Chair*

Message from the Chair

John Zardus, Chair.DIZ@sicb.org

Dear DIZ members,

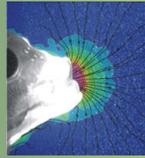
I hope your summer was energizing and that as fall races ahead you are encountering wondrous things at every turn. Something to look forward to is the big meeting in the Big Easy, January 4-8, 2017. With another record year of submitted abstracts, the meeting in New Orleans looks to be great. See the Program Officer's message from Bruno for details about symposia and other meeting highlights. We will hold our Best Student Presentation competition at the meeting as usual, and I just want to remark that our division has always had great participation in this event, from students entering the competition to regular members signing on to judge. I thank all of you who have helped make our division relevant and welcoming to students.

Some shuffling in the division will occur at the meeting in January when Bruno Pernet passes off the baton of Program Officer to Linda Walters and Sammi Smoot takes over as Student/Postdoctoral Affairs Committee Representative while Jenna Moore steps down. We will also hold elections next year to fill the position of Chair-elect for 2018. I will soon convene a nominating committee for the election. If you would like to stand for the position or serve on the committee please let me know. Thanks to all who have served and are willing to serve.

We will hold our next DIZ business meeting on Friday, January 6, at 5:45 pm in New Orleans at the annual SICB meeting. Reports will be given by myself and the other officers of the division as well as by the SICB executive officers. Updates will also be given on the best student presentation awards and the Libbie Hyman award. The budget will be reviewed and the floor opened to discussion of any items of importance to the division. If you have items you would like added to the agenda please contact me in advance.

In March the SICB Executive Committee posted an online survey, querying members on various topics. Some highlights from 614 respondents indicated a stable membership; 68.1% of full members responding have belonged to the Society for more than 10 years. There was high satisfaction (82.6%) with the timing of the annual meeting, but opinion was divided on whether members felt there was (46.6%) or was not (12.3%) a place for a new open access journal published by the society. A link to results of the 2016 SICB Member Survey is on the SICB website (<http://sicb.org>).

The society in general is healthy and vibrant; the last few annual meetings have had record numbers of attendees and budgets are operating in the black. The Division of Invertebrate Zoology in par-



ticular is doing well, due to the dedication and talent of its members. Join the camaraderie of the annual meeting or stay engaged by voting and providing feedback on important issues. A contribution that would benefit the division and society as a whole is to send interesting ideas for symposium topics to our Program Officer or better yet, step up and organize your own symposium. By its nature, our division includes a broad array of research topics and approaches that could be of interest to a wide audience. I encourage you to think of ways to engage and improve our division. All the best for a satisfying end to 2016.



John Zardus and a lovely specimen of *Chaetopterus variopedatus*.

Message from the Program Officer

Bruno Pernet, DPO.DIZ@sicb.org

Hello DIZ members! As I write this, I just got back home from two days holed up in a hotel conference room in New Orleans with the rest of the SICB Program Committee. We spent that time scheduling the 1952 abstracts (~1050 and ~900 posters) submitted for the 2017 New Orleans meeting, organizing business meetings and socials, and evaluating symposia for the 2018 San Francisco meeting. We escaped the conference room once in a while to visit the meeting site (the New Orleans Convention Center), and also to do some preliminary (and very satisfactory) exploration of the food and drink available near the venue. DIZ was well-represented at the meeting; in addition to me, your outgoing Program Officer, DIZ Chair John Zardus (in

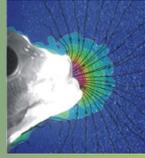
his other role as The Crustacean Society PO) and long-time DIZ member Beth Davis-Berg (in her other role as American Microscopical Society PO) were there, and so I was able to consult with them about all DIZ-specific matters that came up.

We seem to say this every year... but the upcoming meeting is going to be a record-breaker in terms of number of presentations! 1952 abstracts crushes the previous record, which was 1688 abstracts at the 2016 Portland meeting. So the meeting will be even busier than normal. In addition to the 146 sessions of contributed talks and three afternoons of posters, there will be 11 symposia. Of those, DIZ is co-sponsoring five: **Indirect Effects of Global Change: from Physiological and Behavioral Mechanisms to Ecological Consequences** (organized by Alex Gunderson, Jonathon Stillman, and Brian Tsukimura); **Evolutionary Impacts of Seasonality** (Caroline Williams and Gregory Ragland); **With a Little Help from My Friends: Microbial Partners in Integrative and Comparative Biology** (Kevin Kohl and Denise Dearing); **The Evolution of Arthropod Body Plans – Integrating Phylogeny, Fossils and Development** (Ariel Chipman and Doug Erwin); and **Low Spatial Resolution Vision - Function and Evolution** (Anders Garm).

The meeting will begin Wednesday the 4th of January with a plenary address by Past President Dr. Billie Swalla and the society-wide opening mixer. In addition to the symposia, contributed talks, and posters described above, there will be a number of special lectures, workshops, and socials. The DIZ Business Meeting will be 5:45-6:30 pm on Friday the 6th, where [bylaws changes](#) will be discussed. The SICB Business Meeting is on Saturday the 7th at 5:45-6:30 pm. Immediately after the SICB Business Meeting we have scheduled a large, hors d'oeuvre-filled joint social for members of DIZ, DEDB, DEE, DPCB, AMS, and TCS at 6:30-8:30 pm. Come have a drink and food with your colleagues before heading out to the Warehouse District or the French Quarter for dinner!

The meeting will end with the Moore Lecture and another society-wide social on the afternoon of Sunday the 8th.

The primary meeting venue is the New Orleans Convention Center, about 0.7 miles away from the main meeting hotel, the Hilton New Orleans Riverside. The convention center seems like it will be a fine venue, with all the oral presentation rooms quite close to each other, so movement among sessions should be easy.



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Just below those rooms is the exhibit hall. The convention center will not have free wireless throughout, but there will be several hotspots for free wireless access distributed through the building.

New Orleans, of course, is a fantastic city for food (much of which is mollusk or crustacean-based) and coffee and other beverages... and you can find all of those things very near the convention center and hotel. Both are immediately to the south of the Warehouse/Arts District, and a short walk to the west of the French Quarter.

Registration – If you are presenting at the SICB 2017 meeting, please remember that the presenter registration deadline is **November 5, 2016** (see <http://sicb.org/meetings/2017/>). For everyone else, the early fee deadline is **December 1, 2016**. If you need child care, please complete the child care survey (<http://www.sicb.org/meetings/childcareform/index.php>) by **November 15**. If you want to take advantage of the SICB conference discount for airport shuttles/shared rides, you will need to book your shuttle at least 24 hrs in advance by visiting: <http://airportshuttleneworleans.hudsonltd.net/res?USERIDENTRY=SICB0117&LOGON=GO>

As I mentioned above, the Program Committee spent part of our meeting beginning to plan the program for San Francisco in 2018. We selected eleven symposium proposals for development for that meeting; look for further details in the spring newsletter. It's also not too soon to be thinking ahead to the Tampa meeting in 2019. The deadline for submitting symposium proposals for Tampa will be in August 2017, so you have nearly a year to come up with ideas, contact colleagues, and work with your divisional Program Officer (who, starting after the New Orleans meeting, will be Linda Walters) to develop your plans. The number of symposia per meeting is usually 10 to 12, and it often happens that more proposals are submitted than can be accommodated. So it pays to plan early and to get as much feedback as possible along the way from divisional and society Program Officers to fine-tune the proposal.

Finally, at this upcoming meeting, please consider submitting one or more entries to the American Microscopical Society's Ralph and Mildred Buchsbaum Prize for Excellence in Photomicrography. There are separate categories for color and black-and-white photomicrographs. Photomicrographs taken using any type of electron or light microscopy are eligible. The contest is open to all SICB meeting participants, and each participant can submit up to three entries. Previous win-

ners and the complete rules can be viewed on the AMS website (http://amicros.org/?page_id=9). The winning images will be published in the first 2018 issue of *Invertebrate Biology*, an AMS journal co-sponsored by DIZ.

I've had a great time serving as your divisional Program Officer, and especially enjoyed trying to come up with symposium ideas and then pestering people to make them come to fruition. (Sorry about all the pestering!) Anyway, I'm not going to make it to this New Orleans meeting (first one I've missed in over a decade), but I am sure it will be fantastic (I'm already regretting that I'll miss some of the talks and posters I helped schedule). But I'll see you all in San Francisco in 2018!

Message from the Secretary

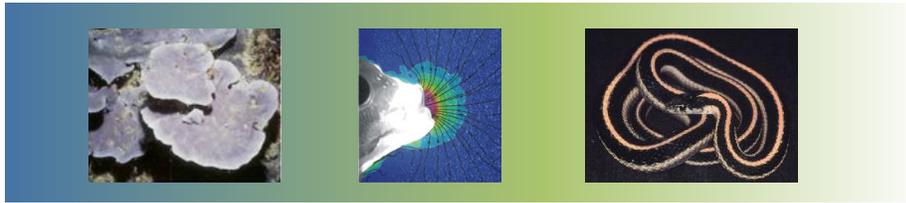
Sarah Berke, Secretary.diz@sicb.org

Greetings, fellow invertebratophiles! I hope that your summers were productive, and that the fall semester is treating you well. By all accounts, we are in for a record-breaking SICB meeting this year – 1952 abstracts, the most ever submitted for a SICB annual meeting by a wide margin. Huge thanks to Bruno Pernet, and all the society's program officers for doing the heroic work of reading and organizing all those contributions. Bruno, of course, is off the hook as program officer after the 2017 meeting. The inimitable Linda Walters will fill his shoes. Congratulations, Linda, and thank you for your willingness to serve DIZ.

Also stepping down is Jenna Moore, who has served as an exemplary student and post-doctoral affairs representative. We welcome Sammi Smoot in her stead – Sammi, congrats and thank you for stepping up!

I'd like to echo John's exhortation to consider serving DIZ. Opportunities this year include the upcoming vacancy in the Chair-elect position, as well as the nominating committee for that position. We also have an ever-growing need for judges at the annual meeting; please see Anne Böttger's message below and consider signing up to judge.

As always, I would like to encourage submissions to our [database of DIZ researchers](#), as well as the SICB Research and Education Resources (RER). If you have a lab, lesson plan, or other educational material that other educators might wish to use, please consider submitting it to the RER. For inspiration, take a look at what's already on the [Invertebrates](#) section, and also check out the [Biomechanics](#) section, which has a rich array of materials.



May the last months of 2016 be good ones for all of you. I look forward to seeing you in New Orleans in the New Year!



Your fearless Secretary, Sarah Berke, spent the summer on the Gulf Coast at Dauphin Island Sea Lab. "You can tell this was taken early in the day, as I am not muddy yet."

is critical to his thesis work, Curtis was unable to attend the STRI course and was therefore unable to use the scholarship funds. We hope that the cruise was productive, and that Curtis is able to seek out another field station course or project in the future!

Two of our award recipients were able to pursue their planned field station experiences, and they both made excellent use of their award funds. **Rachel Shoop**, a M.S. student in the lab of Andrew Bohonak at San Diego State University, used her \$1000 award to support summer research at the Queen's University Biological Station in Ontario, Canada. She had this to say about her experience:

"Thanks to the Libbie H. Hyman Scholarship I was able to travel to the Queen's University Biological Station (QUBS) to collect water mites and meet and collaborate with other researchers in the field. With the guidance of my co-advisor, Dr. Bruce P. Smith from Ithaca College, I sampled several natural bodies of water ranging from marshes and streams to beautiful lakes across Ontario in search of these organisms. Dr. Smith's experience in collecting and identifying water mites proved to be an invaluable resource inside and out of the lab. During my three-and-a-half-week stay in Canada we were able to collect all 14 species of water mites within the subgenus Micruracarus found in northeastern North America.

Traveling to Ontario and staying at the QUBS would not have been possible without the Libbie H. Hyman Scholarship. I will use the DNA and morphological characters of the specimens collected during this field season to reconstruct a phylogeny of water mites within Micruracarus. Additionally, staying at QUBS during this field season gave me the opportunity to learn first-hand from leading experts in water mite systematics and make connections to researchers from different countries. Forging and developing these connections may help me to facilitate international collaboration and lead the way in increasing our understanding of the evolutionary histories of water mites across the globe."

Eric Moore, a M.S. student in the lab of Shannon Pelini at Bowling Green State University, used his \$1000 award to support summer research at the University of Michigan Biological Station. Here is how he described his experience:

"This summer, I was afforded the opportunity to live and work among the diverse group of incredible researchers at the University of Michigan Biological Station. I had no prior field station experience, so at first I was slightly concerned about what to expect. However,

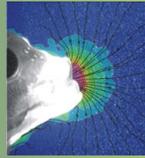


Field work in Chandeleur Sound, Gulf of Mexico

Message from the Libbie Hyman Scholarship Selection Committee Chair

Jennifer Burnaford

In 2016, three awards were made from the Libbie Hyman Memorial Scholarship fund. **Curtis Dinn** of the University of Alberta had planned to use his award to support participation in the Taxonomy and Ecology of Caribbean Sponges course at the Smithsonian Tropical Research Institute Bocas del Toro Field Station in Panama. Curtis's thesis work is focused on discerning the taxonomy and distribution of sponges in the Canadian Arctic. Unfortunately, because of a last-minute scheduling change for the Arctic research cruise which



my apprehensions were quickly put to rest after meeting the friendly and interesting faculty and staff during my first couple of weeks. Everyone was very welcoming and eager to assist me with my research in any way they could.

*I spent a lot of my summer thinking about bugs and dirt, and it certainly made life easier to have a bunch of other people around and thinking about the same things! My master's research involves understanding the roles that soil macroinvertebrates (earthworms and millipedes) play in carbon and nutrient cycling. Specifically, I am interested in how heat stress induced by climate change may alter macroinvertebrate-mediated effects on ecosystem processes including soil respiration, nitrogen leaching, and decomposition. To study this, I constructed mesocosms out of large plastic buckets, and applied two temperature treatments using heat lamps. I also manipulated invertebrate richness and evenness using two species of introduced earthworm (*Lumbricus rubellus* and *Lumbricus terrestris*) and a native millipede (*Narceus americanus*) to tease apart diversity effects. The whole process was no walk in the park, but the guidance and knowledge of the biologists familiar with the station and surrounding area proved to be invaluable resources throughout the summer!*

After my experience at UMBS, I cannot imagine a better place to immerse oneself in research than at a field station. The community provided a perfect environment to exchange ideas and build connections with people who are just as excited about ecology and the future of science as I am. I would be grateful for any opportunity to spend another summer at UMBS!"

These two accounts clearly demonstrate the types of transformative experiences that the Libbie Hyman Scholarship is intended to support. We again acknowledge the generous support of our fund donors, including Dr. Jarid Simons, whose contribution enabled us to offer three awards in 2016. We continue to encourage contributions to the Scholarship Fund to allow us to expand our support for students as they explore the field of invertebrate biology. To make a contribution, click on 'Donate to SICB' on the SICB home page (<http://sicb.org>) or send donations to:

SICB Business Office
Libbie H. Hyman Memorial Scholarship Fund
1313 Dolley Madison Blvd., Suite 402
McLean, VA 22101

Checks should be made payable to SICB and marked as a "Contribution to the Libbie H. Hyman Memorial Scholarship Fund." All contributions are tax deductible.

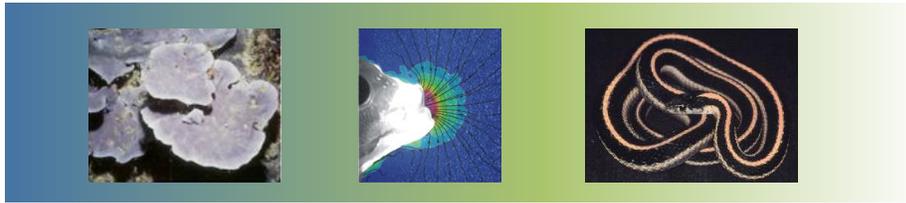
Again, I thank Will Jaeckle and Dawn Vaughn for their service on the committee, and Ruedi Birenheide for making the web-based application process work smoothly. **Applications in 2017 will be due on Monday February 6**, so mark your calendars! The application form is available at <http://sicb.org/grants/hyman/>. If you or your students have questions about the application process, please feel free to contact me via email (my address is available at that site). Please encourage your best students to apply!



2016 Libbie Hyman Scholarship recipient Rachel Shoop, sorting water mites in the field at Black River in Ontario, Canada. (Photo credit: B. Smith)



One of Rachel's study organisms: a female *Arrenurus crenellatus*. The red color morph is thought to be found only at Bon Echo Provincial Park in Ontario. (Photo credit: R. Shoop)



2016 Libbie Hyman Scholarship recipient Eric Moore working with his mesocosms at the University of Michigan Biological Station. (Photo credit: A. Winters)



Eric with one of his millipede study organisms. (Photo credit: C. Maloney)

Message from the Student Awards Committee Chair

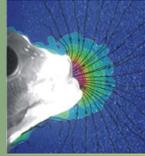
Anne Böttger

Another meeting is almost upon us, and we are happy to announce that we have 41 student presentations (22 posters and 19 oral presentations) registered for consideration as Best Student Paper and Poster Presentation awards. We would therefore like to encourage all post-graduate members who are attending the meeting in New Orleans, Louisiana, to sign up as judges. Attendees will have the option to sign up as a judge in the checkout section of their online registration. In addition, you are also welcome to sign up as a judge by contacting me directly at aboettger@wcupa.edu. We have many presentations this year, but we hope to assign each judge to 4 or fewer presentations. Please help us continue the DIZ's established history of valuing student presentations by signing up as a judge to evaluate student presentations and provide students with valuable comments that will aid them with future presentations.

Judges will be able to choose presentations they are willing to evaluate via the online program for the SICB meeting at New Orleans, which will hopefully be available later in October or November. At that time judges should go online and select the DIZ talks or posters they want to judge: first come, first served. When the schedule is complete, I will email your assignments and judging instructions - typically in late December. Forms to evaluate posters and talks will be provided to all at the time of registration. An envelope with your name, your assignments and the appropriate number of evaluation forms will be left for you at the registration desk. If you would prefer, instead, to receive the forms as electronic versions, please feel free to contact me.

I would like to thank all past DIZ judges for their time and effort, and ask for their continued help. If you have not volunteered as a judge, I strongly encourage you to consider volunteering. It is great fun and a wonderful way to help the division. Judges are often in short supply, yet necessary to continue to offer student awards. In addition, judges' comments are meaningful and important to prepare students for future presentations and help shape their future research questions. If you have any questions regarding the duties of a judge, please do not hesitate to email me at aboettger@wcu-pa.edu.

We look forward to seeing everyone in New Orleans in January 2017!



Proposed change to the Bylaws of the SICB Division of Invertebrate Zoology

A proposal to make changes in the Bylaws of the Division of Invertebrate Zoology is submitted below for consideration by members of the division. There will be a period of at least 60 days to review and discuss the proposal on the SICB - Division of Invertebrate Zoology discussion board (<http://www.sicb.org/divisions/DIZ/bbdiz/>) in advance of any vote taken at the annual meeting in New Orleans.

The proposal presents a possible change to our voting operations, moving from the current, at-meeting voting system to an electronic system coincident with elections after prior posting in the newsletter, or at other times if deemed necessary. **It is expected that this bylaws amendment will be brought to a vote at the 2017 annual DIZ business meeting.**

In addition, we will soon post a proposal (at <http://sicb.org/divisions/DIZ/bylawrevs2016.php>) for modifications to our competition for Best Student Presentations at the annual meetings. A vote on this proposal will not be taken at the annual meeting, but we hope to discuss it at the January meeting, after DIZ members have had a chance to review and discuss the proposal via the DIZ discussion board.

Proposed change to Bylaws Article XV. Amendments

Current Language:

These bylaws may be amended at any annual business meeting by a two-thirds vote of those present, provided that the text of the proposed amendments has been sent to all members of the Division at least 60 days in advance of the annual business meeting at which the amendment is to be considered.

Proposed Amendment (additions are indicated as bold underline and deletions as strikethrough):

~~These bylaws may be amended at any annual business meeting by a two-thirds vote of those present, provided that the text of the proposed amendments has been sent to all members of the Division at least 60 days in advance of the annual business meeting at which the amendment is to be considered.~~ **by a two-thirds vote of DIZ members returning ballots in the Society's annual spring elections or a special election called for the purpose of amending the bylaws, provided that the text of the proposed amendment has been communicated to the membership at least onemonth prior to voting. It is the**

responsibility of the Executive Committee of the Division to assure that opportunities for discussion, either verbal or written, occur before a ballot is taken. Members wishing to propose amendments are encouraged to work with the Executive Committee of the Division to put the proposal on the agenda for discussion at the annual DIZ business meeting preceding the election in which the vote will be held.

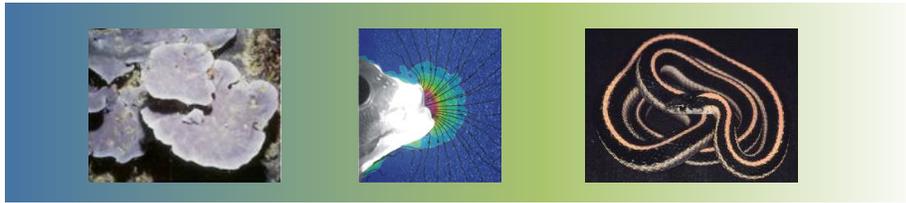
Rationale for proposed change:

1. *These bylaws may be amended by a two-thirds vote of DIZ members returning ballots in the Society's annual spring elections or a special election called for the purpose of amending the bylaws ...*

- The current language is at odds with the rules for the society overall, and contradicts rules laid out in the Divisional Secretary's manual.
- Voting at the business meeting disenfranchises members who cannot attend the meeting. All dues-paying members should have the opportunity to vote. Folding the bylaws ballot into the SICB elections is the most straightforward way to accomplish this. But, in the event that the officers deem it necessary, a special election would also be acceptable.
- DIZ averages nearly 500 members (the number fluctuates year to year), yet fewer than 20 individuals generally attend business meetings. In no way is this a quorum. Under the current system, it would be possible to pass an amendment that is actually opposed by most members. We should not have rules that make it possible to subvert the will of the membership.

2. *...provided that the text of the proposed amendment has been communicated to the membership at least one month prior to voting...*

- The text of the proposed amendment will usually be posted on the website, and should also be in the spring newsletter (either by publishing the full proposal or by providing a link to the proposal). We have left the method of communication open to allow for flexibility.

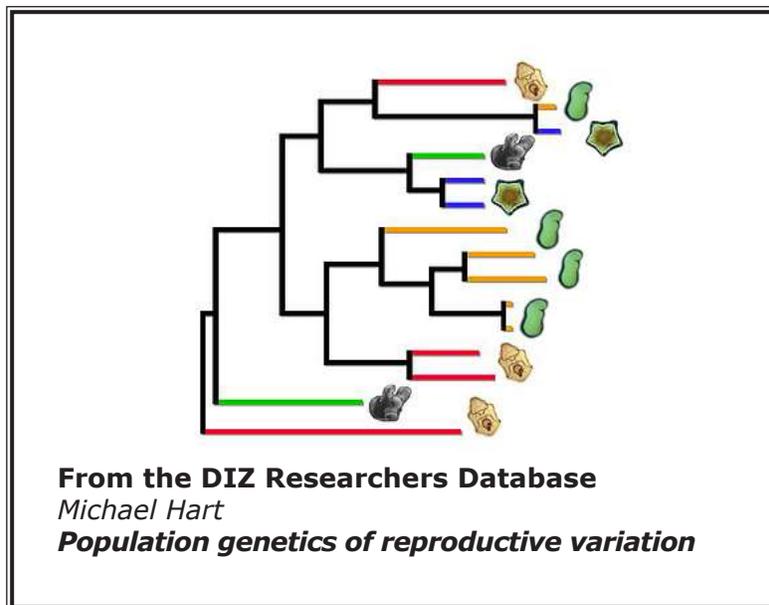


3. It is the responsibility of the Executive Committee of the Division to assure that opportunities for discussion, either verbal or written, occur before a ballot is taken.

- All members should have the opportunity to discuss an amendment before voting on it. Discussion at the business meeting is one very good way to do this (more on this below).
- The executive committee may wish to extend opportunities for discussion beyond the business meeting, for example to the DIZ wiki, to include people who cannot attend the meeting. The best mechanism for such discussion may change over time, therefore we have not specified the wiki or the website in the bylaws. We leave the decision about how best to discharge this responsibility to the DIZ executive committee.

4. *Members wishing to propose amendments are encouraged to work with the Executive Committee of the Division to put the proposal on the agenda for discussion at the annual business meeting preceding the election in which the vote will be held.*

- Members wishing to propose an amendment should at minimum inform the executive committee that they plan to do so, so that the executive committee can discharge their duty to facilitate discussion (it would be excellent to also solicit input from the committee, but that's not required).
- Discussing proposed amendments at the business meeting is encouraged because it ensures that the discussion is recorded in the minutes, thus allowing members who could not attend to see what was discussed and ensuring that points of debate are entered into the record.
- We are unwilling, however, to absolutely require that amendments be discussed at the meeting – circumstances may not always allow this, and some flexibility is desirable.



From the DIZ Researchers Database
Michael Hart
Population genetics of reproductive variation