



# Bonsai Notebook

[www.austinbonsaisociety.com](http://www.austinbonsaisociety.com)

A Publication of the Austin Bonsai Society

December 2021 vol 135

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## Calendar of Events

- **No meeting in December**  
**Happy Holidays and Happy New Year!**

## 2021 Board of Directors

**Roland Lopez**  
President

**Summer Lee**  
Vice President

**Ruwan Perera**  
Secretary

**Gloria Norberg**  
Treasurer

**Morgan Bean**  
Member-At-Large

**Jakob Clark**  
Member-At-Large

**Mike Garza**  
Member-At-Large

## Volunteers

N/A

# President's Message

*By Roland Lopez*

Hello ABS members!

Thankfully, things seem to be getting better for our city and that means meetings are back on at Zilker for next year's program. This is wonderful news as we have not gathered as a community for over a year now. There are no limits on members gathering at Zilker so all are welcome. The only thing we are required to do is to wear masks while at Zilker. So please don't forget them and thank you in advance for helping to keep everyone healthy.

Next year will be a little different for our meetings. We plan to have 3 artists come in person for live demonstrations and workshops or private study. The board feels it is very important to have those kinds of experiences back because they are just plain ol' fun! The other programs will be remote presentations by our guest artists but we will be watching them together at Zilker. These hybrid meetings are totally new and we hope that you attend to make it a more fun experience for the entire club.

These past two years have been a challenge for the ABS board. Because we were not able to meet and have our artists visit, we have not been able to raise money as easily as we have in the past. Our membership has also declined as a result of going completely virtual. We hope by having some artists come in and by having more events for you to participate in such as workshops, digs, etc, that we can return where we once were, stronger and wiser. We appreciate you standing by us during these challenging times and thank you for your continued support and patience.

We'll see you on January 12 for the beginning of our 2022 program!

Happy holidays to you and your loved ones.

Warmly smiling,

Roland

## Get Connected!

Join our online  
discussion



## Official Website

Visit our website at  
[austinbonsaisociety.com](https://austinbonsaisociety.com)

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AustinBonsaiSociety

## Twitter



Follow us on Twitter  
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## ABS Library

<https://abslibrary.libib.com/>

## YouTube



<https://www.youtube.com/channel/UCLSkNkBNld3EOYwjKjNlneA>

# ABS Board Minutes

*November 2021*

Meeting starts at 7:05 pm

Attendees: Gloria, Roland and Simon

Touched on numerous topics and provided guidance on ABS going forward.

Expect a hands on training on OneDrive by Summer in December for all board members.

Meeting concluded at 8:00 pm

## Reminder for club membership

### 2021 membership fee (July to December)

Individual	\$16.50
Family	\$19.50
Newsletter monthly advertisements:	\$37.50
Directory advertisement:	\$11

You may contact [payments.austinbonsaisociety@gmail.com](mailto:payments.austinbonsaisociety@gmail.com) for convenient electronic payment options (processing fee included).

## Your Bonsai and Winter Temperatures: How Low Is Too Low?

by J. R. (Bill) Cody

When the subject of over-wintering our bonsai in Central Texas arises, the primary question is: Just how cold a temperature can our bonsai tolerate. To help the guessers, I compiled the results of three studies that have appeared in the horticultural literature, which are designed to aid commercial nurserymen protect their stock during the winter (table 1).

Some species that are native to our bonsai culture do not appear, but I believe that there is enough information for us to make a more educated guess as to where to “red-line” projected greenhouse/cold-frame low temperatures as we over-winter our bonsai. See Figure 1.

Compare the ambient temperature with that inside the clay root ball near the center of the container—they are essentially equivalent. The slightly lower temperature of the containers sitting on the ground is likely due to their position - four feet lower and colder air sinking to the floor, there being no advantage from ground heat. I believe that this information can be easily extrapolated to fit the weather patterns in other parts of the State.

Table 1 - A compilation of average root killing temperatures (Fahrenheit) for some woody plants. All temperatures are killing temperatures except the third column that lists minimum safe temperatures for that species. The values in columns one and two for “immature” and for “mature” roots are combined from two sources. Note that of the 21 species in which a “minimum safe” vs. a “killing” temperature is known, that the average difference is only 4.71F.



**BRITE IDEAS**

**AQUAPONICS  
HYDROPONICS & ORGANICS**

[Http://www.bihydro.com](http://www.bihydro.com)  
Owner: Troy Smith

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Name of Plant	Type of Roots		Temperature	
	Immature	Mature	Min. Safe	Killing
Acer palmatum 'Atropurpureum'			17	14
Acer pseudoplatanus	4	-5		
Buxus sempervirens	27			15
Cornus florida	21	11	24	20
Cotoneaster horizontalis			22	18
Cotoneaster adpressa var. praecox			20	16
Cotoneaster conjesta	19	-1		
Cotoneaster dammeri	23 to 10	-1		
Cotoneaster dammeri 'Skogholmen'	19			
Cotoneaster microphyllus	25	9		
Crytomeria japonica			20	16
Cystus x praecox			20	15
Daphne cneorum			24	20
Euonymus alata 'Compacta'	19	7		
Euonymus fortunei 'Carrierei'				15
Euonymus fortunei 'Colorata'			10	5
Euonymus fortunei 'Graciles'				15
Euonymus fortunei var. vegetus	23 to 16	12 to 3		
Euonymus kiautschovica	21	16		
Hedra helix 'Baltica'				15
Hypericum spp.	23	18		
Ilex 'Nellie Stevens'	23	14		
Ilex 'San Jose'	21	18		
Ilex cornuta 'Dazzler'	25	18		
Ilex crenata 'Convexa'			24	20
Ilex crenata 'Helleri'	23 to 19	5		
Ilex crenata 'Hertzii'			24	20
Ilex crenata 'Stokesii'			24	20
Ilex glabra				15
Ilex opaca	23	9	24	20
Ilex x meserveae 'Blue Boy'	23	9		
Juniperus conferta				15
Juniperus horizontalis				0
Juniperus horizontalis 'Douglasii'			10	0
Juniperus horizontalis 'Plumosa'	12 to 12	-4 to -2	10	0
Juniperus squamata 'Meyeri'	12	-2		
Kalmia latifolia	16			
Koelreuteria paniculata	16 to 16	-4 to -5		
Leucothoe fontanesiana	19			5
Magnolia stellata	21	9	26	23
Magnolia x soulangeana			26	23
Mahonia bealei	25	12		
Pachysandra terminalis				15
Picea glauca				-10
Picea omorika				-10

Pieris floribunda				5
Pieris japonica	16		15	
Pieris japonica 'Compacta'				15
Potentilla fruticosa				-10
Pyracantha coccinea 'Lalandei'	25	18	22	18
Rhododendron 'Gibraltar'				10
Rhododendron 'Hino-crimson'	19			
Rhododendron 'Hinodegiri'	19			10
Rhododendron 'Purple Gem'	16			
Rhododendron (Exbury Hybrid)	18	3		
Rhododendron (P.J.M.Hybrids)			10	0
Rhododendron carolinianum			15	
Rhododendron catawbiense		3	15	
Rhododendron prunifolium	19			
Rhododendron schlippenbachii	16			
Stephanander incisa 'Crispa'	18	0		
Taxus x media 'Hicksii'	18 to 17	-4 to-5		
Taxus x media 'Nigra'			15	10
Viburnum carlesii			20	15
Viburnum plicatum forma tomentosum	19	7		
Vinca minor				15

**Winter Root Tempatures in Containers  
Inside an Enclosure**

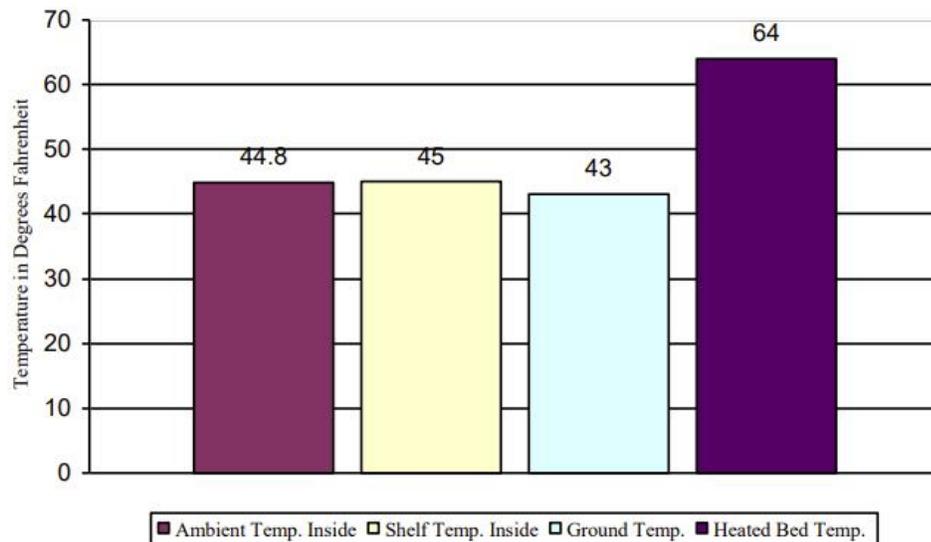


Figure 1. These temperatures were taken during February 2003 within a double-walled room with a woven plastic “insulator blanket” top. The trees were misted using an electronic leaf to activate the misting. The soil thermometer was inserted into the clay root balls of Ashe junipers collected in January and February of 2003. The thermometer was inserted four inches into the growth medium and root ball, making the end of the thermometer about four to five inches from the surface upon which the container was sitting - essentially in the center of the root ball. The “shelf” temps were taken in containers on a shelf four feet from the ground. “Ground” temps were containers sitting on the ground inside the room, and the third group temps were taken in containers buried in a bed of sand, beneath which was an 800 watt system of heating coils. The thermostat was set at 77F.

Since cold hardiness varies among species, between cultivars of a species, and even between various tissues of the same plant (e.g., crown and roots), it is no wonder that there may be confusion as to how to protect our bonsai against the rapidly changing, many faces of Central Texas weather. Temperate zone woody plants develop ‘cold-hardiness’ in response to declining photoperiod (light) and thermoperiod (heat) as the shorter days and longer nights of fall approach. The temperature reduction brought on by cool days and cooler nights contribute to root hardiness by slowing or stopping root growth. However, since temperatures above 60F. tend to slow this hardening process, I’m sure you can appreciate the quandary we face as our plants confront the bouncing-ball daily temperatures of Central Texas. We place our bonsai in enclosed structures to protect them from that surprise blue-norther that is coming through tonight, only to have the enclosure’s ambient temperature reach 70F. the next day even during the dead of winter.

There are two types of cold injury to plants and plant roots: Freezing and chilling. In the case of **freezing**, damage to the roots occurs when ice particles form within the root cells (intracellular water), causing the rupture of cell membranes that is a lethal injury. This type of injury is generally the result of a sudden, rapid fall in the temperature. Ice particles may also form in the water outside the cells (extracellular water). This is a non-lethal and common occurrence in many plants during the winter. However, this

phenomenon may result in damage to cells by shifting intracellular water into the extracellular space, causing cell dehydration with resulting cell damage.

**Chilling** injury occurs when a susceptible plant, especially tropicals, is subjected to temperatures that are actually above freezing. Cooling of the root system and increased viscosity of extracellular water within the plant, as well as changes in the cell membranes between the extracellular and intracellular spaces, interferes with the entry of water into the vascular system. These changes reduce the ability of the plant to move water from the roots to the plant’s tissues at the same rate at which water vapor is being lost into the atmosphere - a desiccation injury ensues much like the wind-chill injury we see during winter windstorms.

Root systems can become acclimated (more resistant) to chilling conditions. Studies show that increased cold hardiness of the root system is related to the degree of unsaturated fatty acids in the membranes of the roots. Increased unsaturated fatty acids result in more rapid water transport through the root tissues at lower temperatures. Phosphorus nutrition seems to be important for root hardiness.

As was mentioned, there is a difference in the cold hardiness of the top of the tree versus the root system. Old roots are hardier than new roots and the latter seem to be unable to acclimate themselves despite the changes in temperature and light of approaching fall. As might be expected, this year’s rooted-cuttings are less able to withstand overwintering than plants that have spent the previous year in one-gallon containers.

Studies show that similar protection is offered root systems of container plants whether they are overwintered in white or clear plastic enclosures—either single- or double-walled. White plastic sheeting for your winter enclosure is of greater value in reducing the accumulation of heat during sunny winter days than clear plastic. Temperatures of 40F above outside temperatures have been recorded inside single-wall clear plastic enclosures and the temperatures were higher when there is a double wall. Double-walled white plastic is the most effective in reducing mid-day heat accumulation. The capability for the ventilation of these enclosures is imperative in those regions which have labile winter temperatures.

The temperatures within containers exposed to high or low ambient temperatures for long periods of time, i.e., all day or all night, eventually approach that of ambient. In February 2003 there were two mornings that the temperature was 23F. Each morning the temperature in all four of the containers was 23F. For this reason the time-honored practice of placing bonsai beneath their respective benches for the winter may not be as safe as we are led to believe. Obviously, the hardiness zone in which one resides and species of plant must be taken into account, but Figure 2 should give the reader some idea of the safety of this practice in his/her back yard.

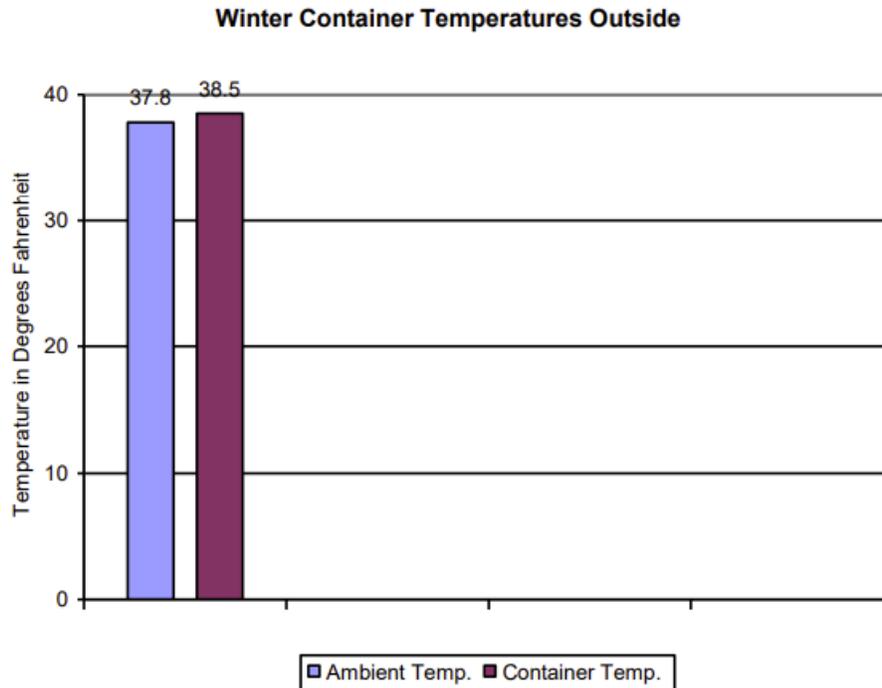


Figure 2. Three large, four inch deep ceramic containers were filled with sharp sand. Two were covered with wind-proof material; the third was not. All had two thermometers inserted two inches deep and two inches from the edge of the container. All were set upon the ground with a northern exposure but without overhead cover. Readings were taken at 0700 CST. On mornings that the wind was 20-30 mph, there would be a 2-3 degree colder temperature in the unprotected container, otherwise all temperatures were equal to or +/- one degree of the ambient reading.

References: Newman, S. E., Root Stress in Containers, Proceedings of the International. Plant Propagation Society, Vol.36:384. 1986.

Good, G. L., et al, Winter Protection of Containerized Ornamental Plants, J. Arboriculture, Vol.2(3):51. 1976.

Ingram, D. L., et al, Effect of Heat Stress On Container-Plants, Proceedings of the International. Plant Propagation Society, Vol. 39:348. 1989.

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## Recruiting Authors

With a nod of respect to John Miller, who has been diligently writing monthly columns for our newsletter, we would also like to take this time to invite interested members with knowledge and experiences of local Austin conditions to write articles for beginners and potential aspirants keen on raising bonsai. The Bonsai Notebook is looking for a new voice to author a column providing helpful reminders and tips dedicated to caring for bonsai. Be it a monthly routine or winter procedures, we'd like to welcome new perspectives and experiences to be shared in this newsletter. If interested, please contact: [webmaster.austinbonsaisociety@gmail.com](mailto:webmaster.austinbonsaisociety@gmail.com).

A warm thank you to John Miller for writing the latest columns. Even I, as the editor, may have taken these last months for granted and have been reminded that life is a charming companion that deserves to be appreciated every day. Thank you for your helpful words!

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# Bonsai Notebook

Austin Bonsai Society  
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## Austin Bonsai Society

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## About Us

The Austin Bonsai Society is a nonprofit organization which exists to help in providing guidance and education for individuals in their desire to learn and expand their knowledge and skill in the arts of bonsai.

The Society holds regular meetings, twelve months a year, on the second Wednesday of each month. Our social period begins at 7:00 pm, followed by our program at 7:30 pm. Normally, unless announced otherwise, these meetings are held in the Zilker Garden Center building, located on Barton Springs Road in Zilker Park, Austin, Texas. We offer a monthly program of interest to the general membership.

The cost of membership is presently only \$32.50 for an individual and \$37.50 for a family membership. For additional information, contact the Austin Bonsai Society at P.O. Box 340474, Austin, TX 78734.