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The Pangolin Shield at The London Design Festival 2026

Join Us

The American Bamboo Society is a volunteer-run organization devoted to providing information on bamboos via its magazine and online journal, promoting bamboo for the public and botanical gardens, increasing the number of species in the U.S., disseminating research about its uses and potential, and to support bamboo research.

To learn more information about joining the ABS, visit https://www.bamboo.org/membership-information or scan the QR code.

ON THE COVER
Hideout Leaf villa in Bali, Indonesia.
Photo courtesy of Pablo Luna Studio

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ABS NEWS
BIOPLASTICS BREAKTHROUGH

The venerated scientific journal Nature published a study late last year that is receiving global attention both for its promise and for its use of bamboo.

Bioplastics – natural materials designed as replacements to non-biodegradable plastics – are being developed using bamboo cellulose. Historically, alternatives to plastic have been hindered by myriad logistical challenges. Bamboo's impressive tensile strength, stronger than steel in some circumstances, and versatile processing abilities are showing promise among plastic alternatives.

The article's Holy Grail-level synopsis puts it well: "This work establishes a method for transforming abundant bamboo cellulose into high-performance, eco-friendly materials, offering a viable pathway to mitigate plastic pollution and fossil resource dependence."

After processing bamboo, the material retains 90% of its mechanical strength, and biodegrades by half within two months after use. Even better, its production is cost-competitive against other bioplastics, making production truly scalable and economical.

The key difference between new experiments and previous ones, of which there have been many with bamboo, lies in the focus. Instead of relying on bamboo fiber as filler material, the current project focused on cellulose extraction.

Cellulose is the tough, natural sugar-based molecule forming the outer walls of plant cells. In this study, scientists described the process of turning that cellulose into a hydrogel. After treatment, it could be shaped like plastic, and even reshaped into new forms.

Further trials need to be done to test its applicability outside the lab. But for now, the future of bamboo bioplastics looks very promising.



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ABS NEWS
RIVERCANE TO THE RESCUE IN NORTH CAROLINA

In Asheville, North Carolina, rivercane is seeing a resurgence, thanks to an unlikely source: A hurricane.

When Hurricane Helene struck western North Carolina with unexpected and unprecedented intensity back in 2024, local residents were mortified to see the type of flooding that swallowed buildings and caused permanent damage to landscapes.

Restoration and rescue efforts began immediately in the wake of the storm, and now, not-for-profit organization RiverLink is bringing native bamboo into the conversation.

Arundinaria gigantea, better known as rivercane, is one of very few bamboos native to the present-day United States. Ancient stands of rivercane have been decimated since European explorers moved into the present-day Southeastern U.S., in order to clear land for development. Considered culturally significant to Native American tribes throughout the east coast stretching towards Oklahoma, patches of rivercane remain rare but are growing thanks to the efforts of groups like RiverLink.

In July 2026, RiverLink recruited volunteers for planting rivercane along the banks of the Swannanoa River. Due to rivercane's dense network of interlocking leptomorphic rhizomes, the plant is well suited for erosion control. That's increasingly important in an area like western North Carolina where numerous waterways course through steep Appalachian terrain.

To learn more about RiverLink's efforts, visit riverlink.org.

WORLD BAMBOO

13th World Bamboo Congress

June 7-11, 2027

Theme: Shaping Sustainable Futures

Rotterdam, The Netherlands.

Concurrently with the European Bamboo Expo and Bouw Met Bamboe construction forum

Bamboo is Not the Boogeyman: Native Rivercane in the Southeastern United States

Speaker: Michael Fedoroff, Ph.D

Dr. Fedoroff is the Executive Director of the CONSERVE Research group at the University of Alabama Water Institute located in Tuscaloosa, Alabama. He also serves as the Founding Director of the Rivercane Restoration Alliance, which serves to work with landowners to restore canebrakes across the Southeastern United States. His research specialties include native plant species and human ecology.

Bamboo Architecture: Past & Present

Speaker: James Wolfe



James Wolf is an industrial designer, product developer, entrepreneur and world-renowed bamboo expert. James is planning a 2-3 hour workshop to build your own bamboo tray!

Kuboo Basketry Workshop

Speaker: Aaron McCarty

Aaron McCarty interned at Haiku Bamboo Nursery with Keiji Oshima from 2014 to 2016. During Aaron's internship he became an apprentice of bamboo craft with an emphasis on splitting bamboo for basketry. He is the inventor of the "Kuboo" basket.

Aaron will do give presentation on " History of Bamboo Basket Making in Japan" and he will also offer a five hour Kuboo Workshop.

An Integral View on Bamboo Study, Learn, Do, Share, No Borders

Speaker: Juan Pablo Martinez

Juan Pablo Martinez, a 52 year old, inquisitive business administrator, with ready hands to do and make and an investigative mind, has been, for the last 20 years, tinkering with bamboo and searching the globe for answers and information. His mindset is understanding bamboo integrally. From the seed to construction, furniture and handicrafts. His life is experiencing the world with bamboo.

Luc's Year Traveling in the World of Bamboo

Speaker: Luc Boeraeve

Luc Boeraeve, American Bamboo Society Past President and current International Director will share his travels around the globe viewing bamboo.

Compost: Wood chips, Bark, Nitrogen, and Drainage Considerations for Growers

Speaker: Dain Sansome

Dain Sansome, born and raised in southern Minnesota Zone 4, Dain has been interested in growing bamboo since he was a young kid. The 1980 National Geographic was instrumental in sparking his enthusiasm, but it wasn't until high school that he joined the ABS in 1995 and began cultivating bamboo. He studied language, music, and science, including Japanese and martial arts. He experienced bamboo farming and sustainable agriculture in Japan in 2001 and has attempted to transplant these learned techniques to his farm over the years. Moved over 250 large divisions of moso from McIlhenny's grove in Louisiana to Oregon in 2010 and '11, which now stands as one of the biggest moso groves on the West Coast proudly sporting 4+ inch culms. Dain is an avid lifelong learner who's keen to try new tools and techniques to accelerate and maximize the size and speed of moso growth.

Simple Flute Making, Fill Your Lungs & Flute Along!

Speaker: Paul Lirette

Paul Lirette is a bamboo artist in coastal Louisiana who focuses on crafting expressive, ergonomic transverse flutes. His work blends traditional hand-tool craft with a practical understanding of tuning, modal music, and the natural voice of each piece of bamboo. Outside the workshop, he and his wife are raising their kids, tending a garden and an ever growing cactus collection. He is excited to teach bamboo enthusiasts how to make an instrument that is special to them.

Bamboo Flyrod Making

Speaker: Don McGowan

Aside from formal studies and practices, Don has honed lifelong skills as an engineering craftsman, whereby hands on metal shop to wood working have yielded numerous solid projects. Most recently self-taught, he endeavors to build Bamboo Fly Rods.

The Bamboo Blueprint: Regenerating Soil

Speaker: Shanti Pierce



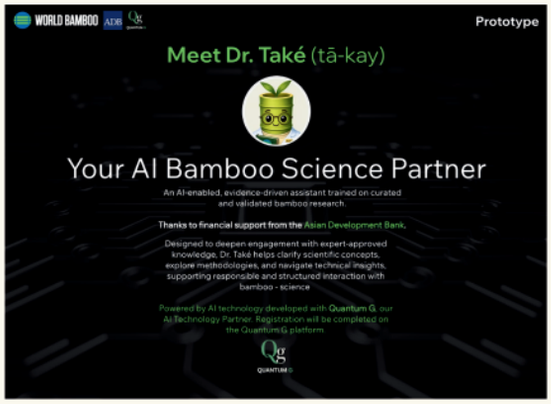
Shanti Pierce has been working with bamboos since the mid-90's, moving to Florida to work for Walt Disney Imagineering as their bamboo and ornamental grass specialist on the Animal Kingdom Project and following that project began her own farm. Shanti is the owner of Bamboo Leaf Tea which pioneers the use of bamboos as medicine in the US. She also owns This Bamboo Life, which specializes in bamboo consultations & installations. Through these venture, she helps individuals, businesses, & farms create unique and regenerative spaces utilizing bamboos.

DR. TAKE: YOUR AI BAMBOO RESEARCH PARTNER

By Susanne Lucas

The global bamboo community faces both opportunity and challenge. Demand for bamboo is growing rapidly across construction, textiles, food production, nature and climate solutions. Yet reliable, empirically validated information remains surprisingly scarce. Professionals, investors, researchers, growers and policymakers too often rely on general reviews, congress summaries or website overviews that lack the depth and precision required for sound decisions.

World Bamboo Science, in partnership with the World Bamboo Organization (WBO) and with support from the Asian Development Bank and technology development by QuantumG, has created a practical AI enabled solution. Dr. Také (tā-kay) is a new AI interface prototype that delivers answers drawn directly from curated scientific databases. Unlike many AI tools that scan abstracts or secondary sources, Dr. Také is built exclusively on full peer-reviewed papers containing real measured data – field trials, laboratory results and controlled experiments.



The foundation of the system consists of three fully operational Main Databases (we will continually build out to include other focus subjects) :

- Nutrition, documenting nutrient requirements, fertilisation regimes, uptake rates and growth responses from replicated plantation trials across species and regions;
- Preservation, compiling treatment efficacy, durability testing and long-term performance under varied environmental conditions;
- Plantation management, consisting of a more restricted database, focusing on tissue culture of tropical bamboos, specifically Dendrocalamus asper.
- Carbon Sequestration: Empirical data on carbon sequestration of bamboo.

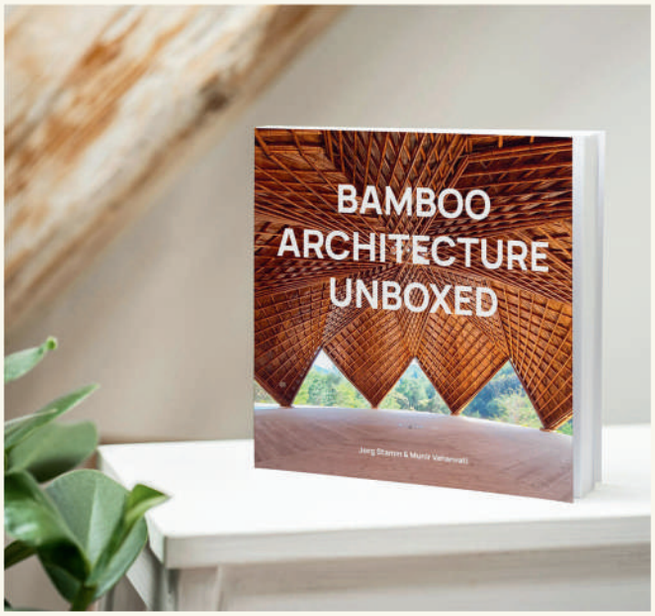
Each database is assembled through a rigorous, human-led process: systematic searches of Google Scholar, Wiley, Elsevier and other academic platforms; careful selection of papers with original empirical measurements; detailed metadata extraction; and full-text verification. The result is an expert system capable of providing traceable, accurate responses on core bamboo topics. The need for precise data is crucial. Despite the many publications and claims surrounding bamboo's climate benefits, truly empirical data remain scarce. This is the true value of our databases.

Try out the Dr. Tāke database by visiting worldbambooscience.net

BAMBOO ARCHITECTURE UNBOXED

By Lawton Rogers

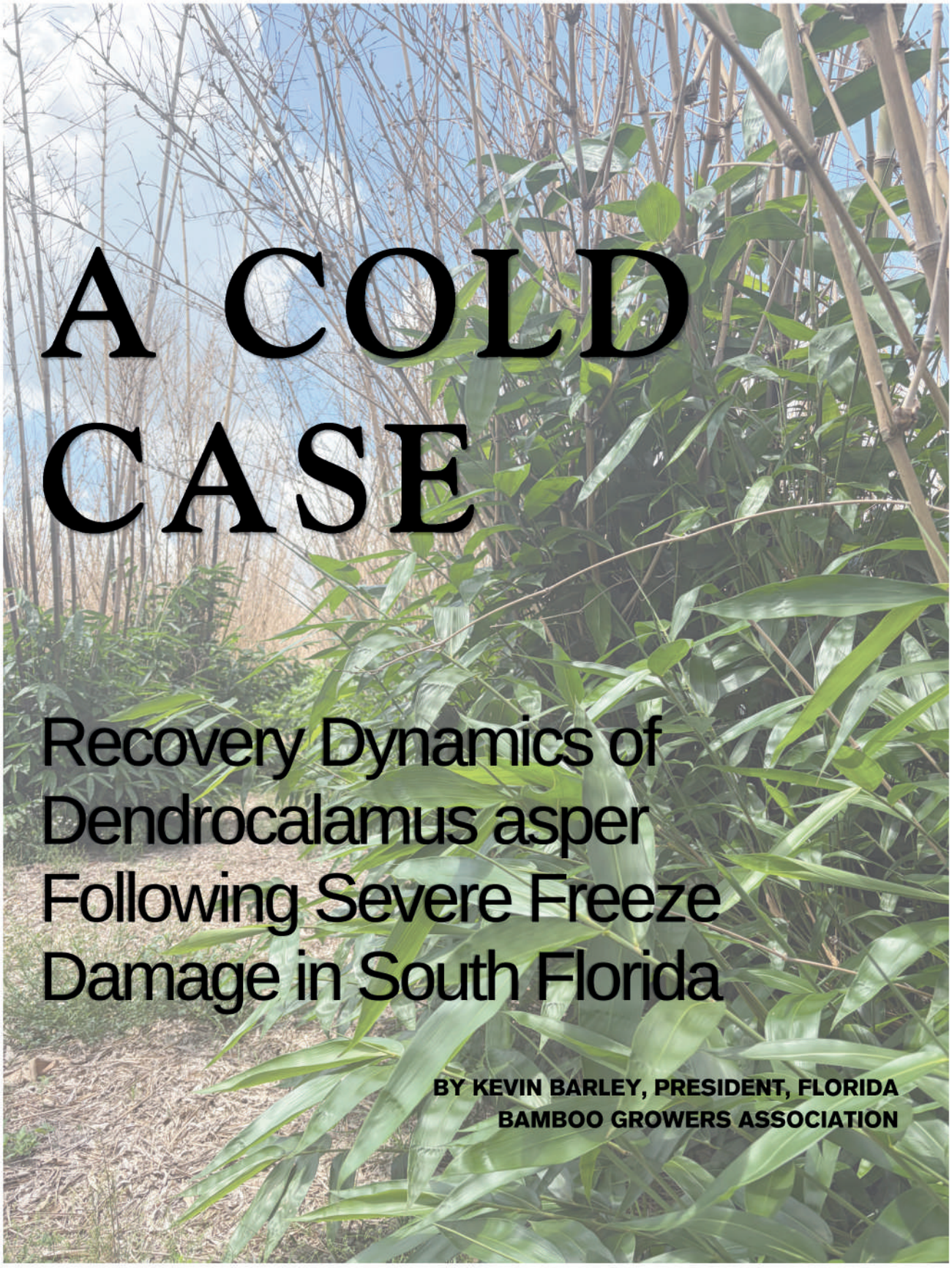
After I finished building a cool bamboo structure last week, a friend asked how I came up with the design. Instead of explaining, I just handed him *Bamboo Architecture Unboxed*.



Bamboo Architecture Unboxed is a wonderful new self-published book by Jörg Stamm and Munir Vahanvati. After hearing Mr. Stamm speak so inspiringly at the last ABS conference; I knew I had to get it. From the moment you pick it up, you can feel the quality–the heavy paper and durable sewn binding mean it's built to last, making it the perfect coffee table book to leave open and display.



Besides the pictures of Stamm's past projects there are also instructions on how to build the elements of the designs in the book. While I've seen plenty of bamboo architecture online, holding these pictures in your hands is a completely different experience. As a DIYer living in West Virginia, the local bamboo I have access to is thin-walled and prone to cracking, so I'll probably never build anything on the scale of the masterpieces in these pages. But as a retiree, I have the time to play, experiment, and create. *Bamboo Architecture Unboxed* is a beautiful addition to my bookshelf, and flipping through its pages gives me all the inspiration I need to keep bringing my own architectural dreams to life.



A COLD CASE

Recovery Dynamics of Dendrocalamus asper Following Severe Freeze Damage in South Florida

BY KEVIN BARLEY, PRESIDENT, FLORIDA BAMBOO GROWERS ASSOCIATION

SEVERE FREEZE EVENTS REPRESENT ONE OF THE MOST SIGNIFICANT ENVIRONMENTAL STRESSORS AFFECTING TROPICAL CLUMPING BAMBOO PRODUCTION IN SUBTROPICAL REGIONS SUCH AS SOUTH FLORIDA.

This white paper evaluates the expected recovery behavior of mature stands of *Dendrocalamus asper* following a freeze severe enough to:

- completely defoliate the plants,
- kill most above-ground culms to ground level,
- while leaving underground rhizomes alive and healthy.

The analysis is based on a mature six-year-old commercial grove in South Florida where:

- soil temperatures remained near 55°F,
- rhizomes were protected with mulch,
- the grove was healthy prior to freeze,
- and strong post-freeze nutrition and irrigation were applied.

Under these conditions, the outlook for long-term grove survival is highly favorable. Although the freeze causes severe top-growth loss, the preservation of the rhizome system fundamentally changes the recovery trajectory. The grove effectively behaves as a perennial grass system undergoing a full canopy reset rather than complete crop failure.

Expected impacts include:

- substantial vegetative recovery within one growing season,
- reduced edible bamboo shoot production during the first post-freeze shooting cycle,
- and near-normal production recovery within one to two growing seasons.



Background: Tropical Bamboo Sensitivity to Freeze Events

Dendrocalamus asper is among the most commercially valuable tropical bamboo species in the world due to:

- large culm diameter,
- rapid biomass accumulation,
- and premium edible shoot quality.

However, unlike temperate bamboo species, *D. asper* possesses relatively low cold tolerance in above-ground tissues. Exposure to freezing temperatures can result in:

- leaf burn,
- defoliation,
- culm tissue collapse,
- and full top-kill of exposed canes.

The severity of long-term damage depends primarily on one factor: rhizome survival.

If underground rhizomes remain viable, mature clumping bamboo can regenerate aggressively even after catastrophic loss of above-ground material.

Freeze Scenario Evaluated

This paper evaluates a commercial South Florida grove with the following conditions:

Variable	Condition
Species	*Dendrocalamus asper*
Grove Age	6 Years
Freeze Timing	February
Above-Ground Impact	Severe defoliation and culm death
Soil Temperature Minimum	Approximately 55°F
Rhizome Condition	Alive and healthy
Soil Protection	Heavy mulch
Pre-Freeze Health	Strong and well maintained
Post-Freeze Management	High nutrition and irrigation

Biological Recovery Mechanism

Rhizome Preservation

The underground rhizome network functions as:

- the plant's energy reserve system,
- regenerative bud bank,
- and primary survival organ.

In this scenario, the reported soil temperature minimum of approximately 55°F is critically important because:

- lethal rhizome injury in tropical bamboo generally occurs at substantially lower temperatures,
- mulch insulation significantly buffers soil temperature fluctuations,
- and carbohydrate reserves likely remained intact.

As a result, the freeze damage is primarily structural rather than terminal.

Carbohydrate Reallocation

Following severe top-kill:

- stored carbohydrates within the rhizomes are mobilized,
- dormant buds activate,
- and the grove redirects energy toward canopy reconstruction. This creates a temporary production imbalance:
- energy is diverted toward rebuilding vegetative structure,
- while edible shoot production becomes secondary.

Replacement Culm Production

The first major post-freeze shooting cycle typically produces:

- a higher percentage of recovery culms,
- medium-sized replacement canes,
- and dense foliage regeneration.

During this phase, the grove prioritizes restoration of photosynthetic capacity over maximum edible yield.



Expected Recovery Timeline

Phase 1 – Dormant Recovery (0–3 Months Post-Freeze)

February–May. During this phase:

- dead culms remain standing,
- underground buds begin activating,
- rhizome metabolism increases with warming soil temperatures,
- and new shoot emergence may be delayed. Visible growth may appear limited initially despite active underground recovery

Phase 2 – Primary Regeneration (First Shooting Season)

June–September. The first post-freeze shooting season is the most critical recovery period. Expected characteristics include:

- emergence of numerous replacement shoots,
- reduced average shoot size,
- smaller culm diameters,
- and moderate reduction in edible harvest quality. Many new shoots will be allocated toward structural recovery rather than commercial harvest.

Phase 3 – Canopy Reestablishment (6–12 Months)

By late summer and fall:

- foliage density increases substantially,
- photosynthetic output improves,
- and rhizome vigor strengthens. Well-managed groves often show dramatic visual recovery by the end of the first growing season.

Phase 4 – Production Normalization (12–24 Months)

Assuming no additional freeze events:

- culm size progressively increases,
- rhizome energy reserves stabilize,
- and shoot production approaches pre-freeze levels. Most healthy mature groves can achieve near-normal productivity within one to two growing cycles.



Expected Impact on Bamboo Shoot Production

First Post-Freeze Shooting Season

Under the conditions described, commercial bamboo shoot production is expected to decline materially during the first recovery year. Estimated Reduction in Marketable Shoot Yield: 30%–70%. The severity of reduction depends on:

- duration of freezing exposure,
- extent of bud damage,
- amount of surviving live culm tissue,
- and pre-freeze carbohydrate reserves.

Because the evaluated grove was mature, healthy, heavily mulched, irrigated, and aggressively fertilized after freeze, the expected outcome is toward the favorable end of recovery projections. Complete loss of the shooting season would be considered unlikely if rhizomes remained viable.



Why Production Declines After Freeze

Loss of Photosynthetic Infrastructure

Before freeze damage, the leafy canopy continuously generated carbohydrates, while mature culms stored and transported energy.
After freeze-induced top-kill, the grove loses most active photosynthetic tissue, stored reserves must support regeneration, and energy allocation shifts away from edible shoot maximization.
This temporary diversion of energy explains reduced shoot size, reduced marketable volume, and delayed production normalization.

Positive Recovery Indicators in This Scenario

Several factors substantially improve recovery probability:

Mature Grove Age
A six-year-old grove possesses extensive rhizome mass, large carbohydrate reserves, and a significant dormant bud bank.
Young groves suffer much greater freeze vulnerability.

Mulching Protection
Heavy mulch likely stabilized soil temperatures, reduced rhizome stress, and prevented lethal underground chilling.

South Florida Climate
Rapid spring warming accelerates rhizome activation, shoot elongation, and foliage regeneration.

Aggressive Fertility and Irrigation
Post-freeze nutritional support is essential because recovering bamboo behaves similarly to a high-demand perennial grass crop. Particularly important are nitrogen for foliage regeneration, potassium for stress recovery, and consistent moisture for rapid shoot expansion.



Long-Term Outlook

The long-term prognosis for the grove described is highly positive. Assuming no repeated severe freeze events, continued irrigation, and proper fertility management, the grove is expected to survive fully, rebuild canopy structure rapidly, restore strong culm production, and recover near-normal shoot productivity within approximately two growing cycles. In tropical bamboo systems, rhizome survival represents the dividing line between temporary setback and plantation failure. In this case, all indicators suggest the freeze event created a severe but recoverable canopy reset rather than permanent grove collapse.

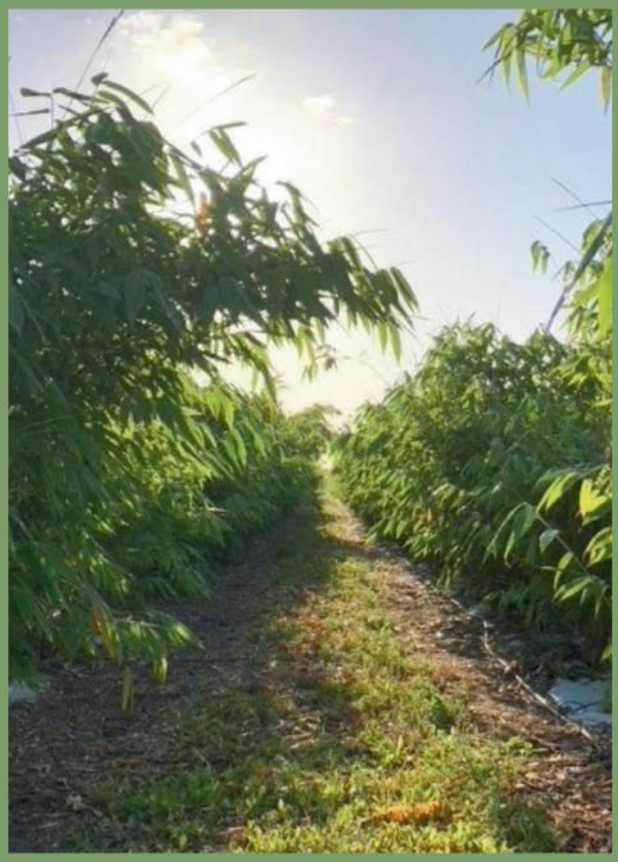
Conclusion

Severe freeze damage to *Dendrocalamus asper* in South Florida can create dramatic short-term losses in canopy structure and shoot production. However, where underground rhizomes remain alive and insulated, mature groves possess remarkable regenerative capability.

For established commercial groves, survival potential remains strong, recovery can proceed rapidly under intensive management, and long-term productivity can be largely restored. While the first post-freeze shooting season should be expected to produce significantly reduced edible yield, the grove's structural and commercial future remains highly favorable under the conditions described.



Dendrocalamus asper bamboo, immediately after freeze



Dendrocalamus asper bamboo, one year after freeze



Gone South

HOW THE LARGEST BAMBOO COLLECTION IN TEMPERATE LATIN AMERICA WAS ESTABLISHED WITH HELP FROM THE AMERICAN BAMBOO SOCIETY

BY Prof. Dr. Friedrich Schlegel
Hon. Member ABS

During the 1970s, few introduced bamboo species had been cultivated in gardens and parks: *Phyllostachys aurea*, *Phyllostachys nigra*, *Pseudosasa Japonica*, *Fargesia nitida* and *Bambusa bambos*.

Only twelve endemic Chusquea species are growing naturally in Chile. From the native ones only *Chusquea culeou* had been used occasionally at some parks and farms in south-central Chile.

In 1972 I founded an Arboretum for the Faculty of Forest Sciences, University Austral at Valdivia on an area of 32 hectares that included substantial remnants of temperate rainforest.

Valdivia has an oceanic climate, featuring heavy rainfall year-round, cool-to-cold cloudy winters, and short, mildly warm summers. It receives a substantial annual precipitation total of approximately 1,972 mm (77.6 inches),

A Home for Native Bamboos

I focused its development on the establishment of small stands of different native and introduced tree species, with special interest in rare and endangered endemic Chilean tree species and endemic Chusquea bamboo species.

My interest to also create a bamboo collection put me in contact with Richard Haubrich, then president of the ABS, San Diego Botanical Garden, California. The original idea was to obtain accessions from temperate bamboo species from Quail Gardens. Richard liked my project and contributed to this purpose. Fortunately we counted on the expert support of Gilbert 'Gil' Voss, then the Curator of Quail Gardens, Encinitas.



Chusquea Cumingii

Logistical Challenges and Opportunities

Two important limitations had to be overcome: the strict regulations of the Chilean phytosanitary service and how to cope with the climatic reality of opposite seasons between southern California in the northern hemisphere and Valdivia, Chile in the southern hemisphere.

Richard Haubrich agreed on the preparation of the rhizomes, according to Chilean phytosanitary regulations, and to send them just at the beginning of Californian spring. So, after a phytosanitary check-up in Chile they could arrive at Valdivia just during the end of Autumn.

It worked successfully, since all rhizomes checked at the Chilean service arrived safely on time at Valdivia. On arrival the rhizomes had to be soaked for some hours in warm water and then the application of rooting hormones. After this, we planted the rhizomes at the nursery. During spring all rhizomes started to sprout. They were kept at the nursery and then, according to their development, outplanted to their definitive site.

The most successful bamboo, *Phyllostachys pubescens*, originated from seeds sent by Richard Haubrich.

Two natural stands of the Chilean bamboos, *Chusquea valdiviensis* and *Chusquea Macrostachya* are present in the arboretum. Also some planted clumps of *Chusquea culeou*, *Chusquea Cumingii* and *Chusquea montana f montana* are on site. Those had been raised purposely from seeds, in order to find out about their gregarious flowering age.

The list of bamboos on the following page were provided by the American Bamboo Society with planting year to the Arboretum Faculty of Forest Sciences, University Austral, Valdivia, Chile.

Since their introduction all 31 species and varieties provided by the ABS developed very successfully. The Bambusetum in Valdivia constitutes the largest bamboo collection in temperate Latin America.

The Arboretum is located right on Isla Teja in proximity to the Universidad Austral de Chile campus. This massive botanical reserve acts as a living research facility. It boasts the country's largest collection of woody, rare and threatened native species, alongside stands of several introduced tree species.



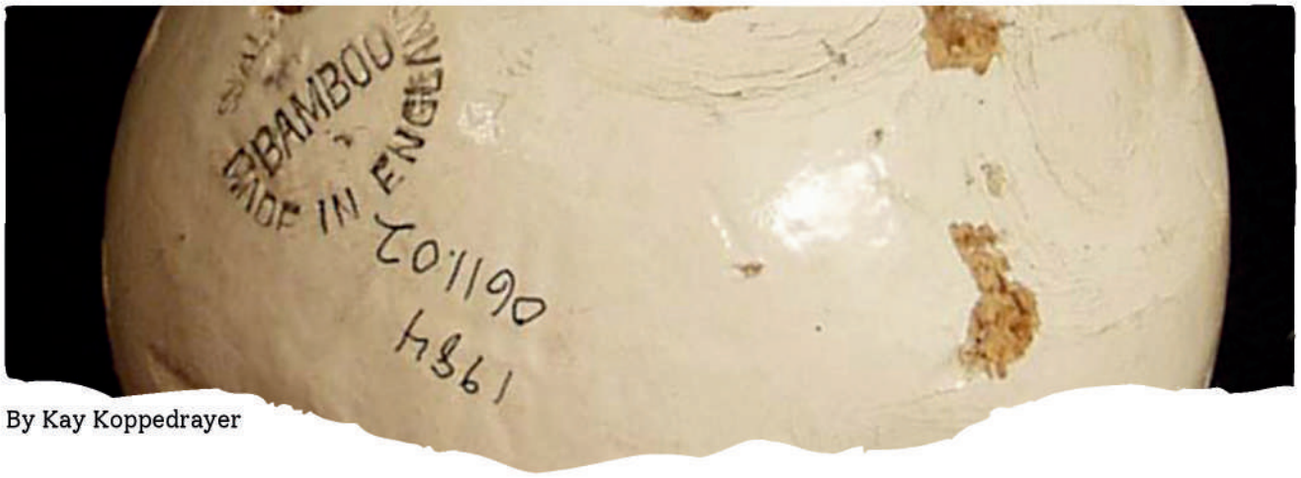
Chusquea valdiviensis



Chusquea culeou



Bambusa multiplex ‘Alfonse Karr’	1987
Bambusa multiplex ‘Golden Goddess’	1986
Chimonobambusa marmorea	1986
Chimonobambusa quadrangularis	1986
Pleioblastus chino ‘pumilus’	1984
Pleioblastus hindsii	1988
Pleioblastus gramineus	1988
Pleioblastus viridi – striatus	1985
Phyllostachys bambusoides ‘Giant Timber’	1988
Phyllostachys bambusoides ‘White Crook Stem’	1988
Phyllostachys bissetii	1986
Phyllostachy dulcis	1986
Phyllostachys elegans	1988
Phyllostachys glauca	1988
Phyllostachys makinoi	1987
Phyllostachys nigra ‘Punctata’	1987
Phyllostachys nigra ‘Bory’	1985
Phyllostachys nidularia	1987
Phyllostachys nuda	1987
Phyllostachys edulis	1985
Phyllostachys purpurata	1987
Phyllostachys rubromarginata	1987
Phyllostachys viridis	1986
Phyllostachys viridis-glaucescens	1986
Phylostachy viridis ‘Robert Young’	1987
Phyllostachys vivax	1987
Pseudosasa amabilis	1988
Sasa albo-marginata	1988
Sasa palmata	1988
Shibataea kumasaca	1986
Semiarundinaria fastuosa viridis	1986



By Kay Koppedrayer

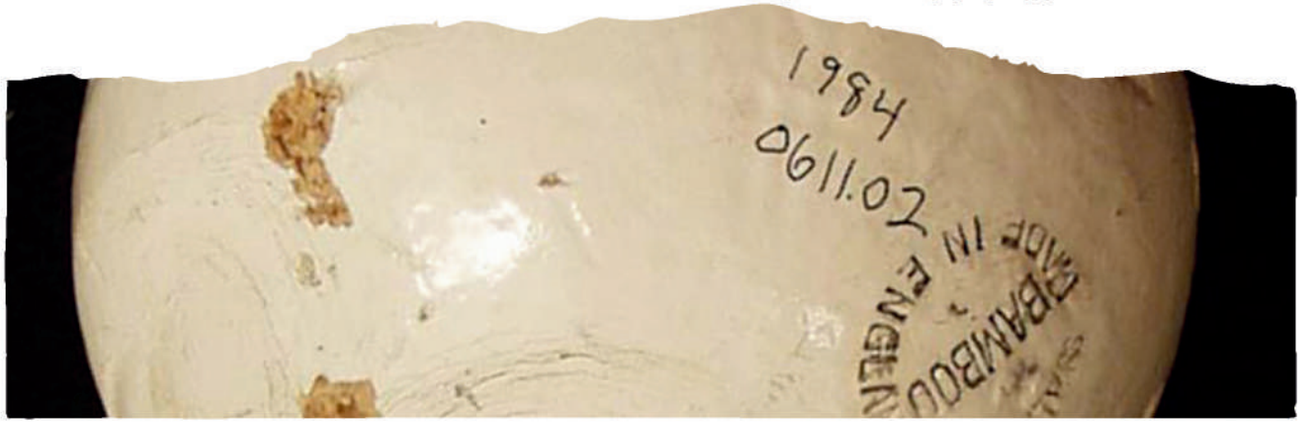
IN THE GAME

The rich history of bamboo in polo

Who would have ever thought...that those little round balls used in polo were made from bamboo? Not just any bamboo, but from the large rhizomes of one of the tropical bamboos native to the Indian subcontinent. Considering the origins of the game, it's not surprising that India would play a role in its equipment.

Similar to hockey, except it is played on horseback and on grassy fields rather than ice, the game of polo likely originated somewhere in Central Asia. Following trade routes as well as armies on the move, it spread through other parts of Asia–to Persia, Tibet, then the Indian subcontinent, China, and even Japan. Babur, a descendent of Genghis Khan and founder of the Mughal dynasty in the Indian subcontinent, decreed the game to be part of his court's activities. With its associations with martial training and the court, the competition became a popular sport in India in the Mughal period (1526–1857).

In the 19th century, when the British East India Trading Company had established a foothold in the subcontinent, English officers were introduced to the game. By the 1860s, when Britain had assumed control of much of the subcontinent, members of the British army were avidly playing polo.



Army officers, British civil servants, tea planters, and other English living and working in the subcontinent founded clubs dedicated to the sport, and when they returned to England, they took the game with them. Polo was soon to become a national sport in England, played even by members of the royal family.

Not counting the horse, the equipment used by polo players is straightforward. Each player needs a long-handled mallet fitted with a solid head strong enough for striking the ball. When the British brought the game back to England, they brought with them the equipment used in India. There, the mallets were rattan and bamboo, with balance, weight, and flexibility, or "whippiness," characteristics all key to a good mallet. The long handles were made from various species of rattan. Most prized was the rattan identified as moonah cane or Singapore cane, characterized as very hard, with dense fibers and dull white in color.

A 1913 monograph on polo in India by a British officer, Lieut-General Sir Beauvoir de Lisle, mentions two other species, Assam cane, smooth, soft, and looking like it was varnished and Burma cane, a soft, brown rattan, that were used, dismissing both as inferior to Moonah cane. Other works, such as the Walther and Stevenson 1927 Polo rule book and sale catalog out of Australia identify four different types of rattan, straight white Moonah cane, root tapered cane, short-jointed cane, and Malacca cane, each with specific characteristics of strength, balance, flexibility, weight, and durability.

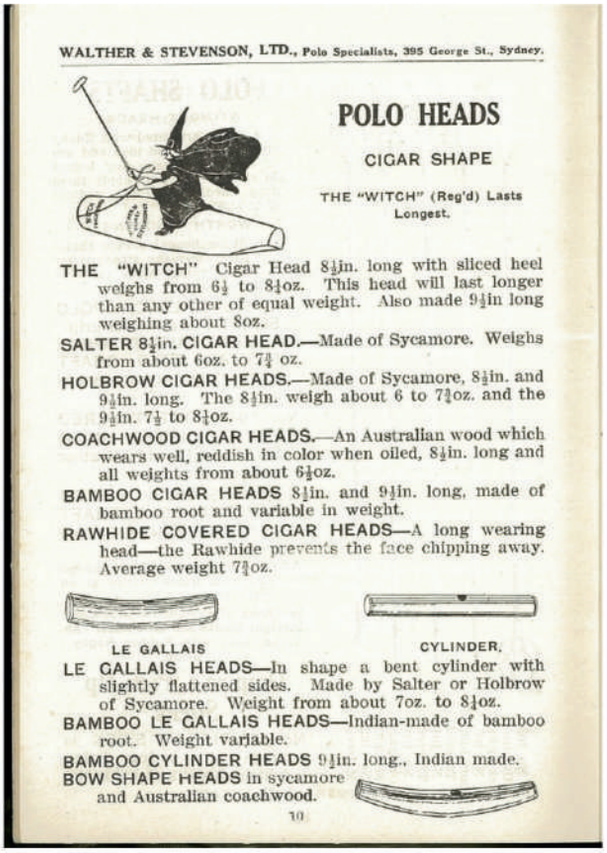
The mallet heads used in India were typically made from the root of the species identified as male bamboo, likely *Dendrocalamus strictus*, a bamboo with nearly solid culms.

Very strong and resilient, mallet heads made from the underground rhizome and root mass were said to pack a punch.

They were sometimes made with the nodes at each end of the head or with the node right in the middle. Lieut-General Sir Beauvoir de Lisle noted that he preferred the node in the middle because that was the densest part of the piece of bamboo root. Positioned there, the weight of the head was balanced and its density was advantageous. A dead center hit gave the polo ball some distance, or as one commentator put it, the mallet heads of male bamboo had great driving power. Trade with Southeast Asia introduced the use of other species of bamboo, such as *Bambusa spinosa*, said to be equally good.



In England and in other Western countries where polo became quite the fashion, various other close-grained woods were substituted, including ash, sycamore, and willow. For purists, however, a mallet made from "Singapore cane, a male bamboo head" and a handle bound with, "nawar," a cotton tape, "is the perfection of a polo stick." Such purists believed that mallet heads made of male bamboo had superior resilience of over those made of English wood. As for polo balls, the prime material was again the nearly solid underground bamboo rhizome, from the same species. Crafting a ball required a lengthy process of seasoning. Ranjit Mal, one of the last artisans still making bamboo polo balls, details the process in an article posted on the website run by The People's Archive of Rural India. He explains that once the rhizome mass was cut and pulled from the ground, it would be dried in the sun for around four months, periodically turned to prevent cracking.



WALTHER & STEVENSON, LTD., Polo Specialists, 395 George St., Sydney.

POLO HEADS

CIGAR SHAPE

THE "WITCH" (Reg'd) Lasts Longest.

THE "WITCH" Cigar Head 8½in. long with sliced heel weighs from 6½ to 8¼oz. This head will last longer than any other of equal weight. Also made 9½in long weighing about 8oz.

SALTER 8½in. CIGAR HEAD.—Made of Sycamore. Weighs from about 6oz. to 7¾ oz.

HOLBROW CIGAR HEADS.—Made of Sycamore, 8½in. and 9½in. long. The 8½in. weigh about 6 to 7¾oz. and the 9½in. 7½ to 8¼oz.

COACHWOOD CIGAR HEADS.—An Australian wood which wears well, reddish in color when oiled, 8½in. long and all weights from about 6½oz.

BAMBOO CIGAR HEADS 8½in. and 9½in. long, made of bamboo root and variable in weight.

RAWHIDE COVERED CIGAR HEADS—A long wearing head—the Rawhide prevents the face chipping away. Average weight 7¾oz.

LE GALLAIS CYLINDER.

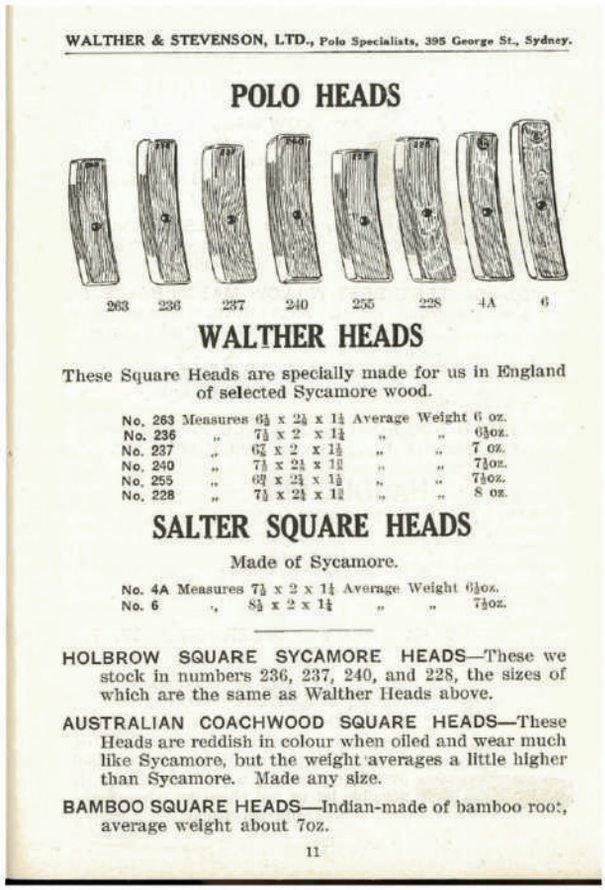
LE GALLAIS HEADS—In shape a bent cylinder with slightly flattened sides. Made by Salter or Holbrow of Sycamore. Weight from about 7oz. to 8¼oz.

BAMBOO LE GALLAIS HEADS—Indian-made of bamboo root. Weight variable.

BAMBOO CYLINDER HEADS 9½in. long., Indian made.

BOW SHAPE HEADS in sycamore and Australian coachwood.

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WALTHER & STEVENSON, LTD., Polo Specialists, 395 George St., Sydney.

POLO HEADS

263 236 237 240 255 228 4A 6

WALTHER HEADS

These Square Heads are specially made for us in England of selected Sycamore wood.

No. 263	Measures	6½ x 2⅛ x 1¼	Average Weight	6 oz.
No. 236	"	7⅛ x 2 x 1¼	" "	6¾oz.
No. 237	"	6⅞ x 2 x 1⅛	" "	7 oz.
No. 240	"	7⅛ x 2⅛ x 1⅛	" "	7⅛oz.
No. 255	"	6⅞ x 2⅛ x 1⅛	" "	7⅛oz.
No. 228	"	7⅛ x 2⅛ x 1⅛	" "	8 oz.

SALTER SQUARE HEADS

Made of Sycamore.

No. 4A	Measures	7⅛ x 2 x 1¼	Average Weight	6¾oz.
No. 6	"	8⅛ x 2 x 1¼	" "	7¼oz.

HOLBROW SQUARE SYCAMORE HEADS—These we stock in numbers 236, 237, 240, and 228, the sizes of which are the same as Walther Heads above.

AUSTRALIAN COACHWOOD SQUARE HEADS—These Heads are reddish in colour when oiled and wear much like Sycamore, but the weight averages a little higher than Sycamore. Made any size.

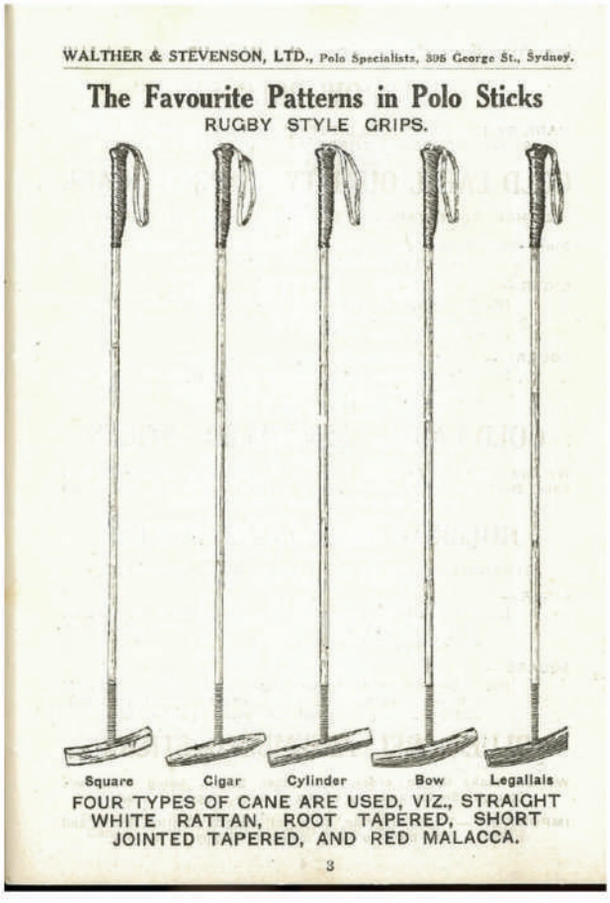
BAMBOO SQUARE HEADS—Indian-made of bamboo root, average weight about 7oz.

11

When suitably heat baked, the rhizome would then be soaked in a pond for another two to three weeks to soften it. Then he would dry it again for another two to three weeks. He would process several batches of rhizomes in this way. Then, to work a seasoned rhizome mass, Ranjit used hand tools, a small scythe for scraping, a hand axe to remove outer material, and a coping saw to cut the uneven mass into cylindrical pieces. He then shaped those pieces into the round polo balls by hand using a small chisel and hammerstone. To even out the chisel marks, he used a hand-held plane about the size of his palm. His wife did the finishing work with sandpaper, and when they were satisified with the results they painted the balls white. Each ball had to be exactly 3.5 inches in diameter and weigh 4 ounces. Depending on the size of the rhizome, Ranjit could cut two, three or four balls from one piece. Together he and his wife could finish 20 balls a day.

Deulpur, the village where they live, is just just outside Kolkata in West Bengal, India. The area was once a center of bamboo polo ball manufacturing, with a large export market. Today, that market is vastly decreased, thanks to the introduction of first plastic, and then fiberglass polo balls in 1990. Though initially more expensive, fiberglass polo balls last longer, especially in the fast-pace of today's game, and clubs have moved away from the traditional hand-crafted balls. Only a few decades ago, a thriving cottage industry produced polo balls crafted from bamboo. Now, it is a dying craft. According to some estimates, 250,000 bamboo balls were exported annually from India and Pakistan in the 1970s and 1980s, whereas today, the number is maybe 2,000. Once sold by the bucketful at polo clubs worldwide, bamboo polo balls have become a rare and somewhat prized commodity.



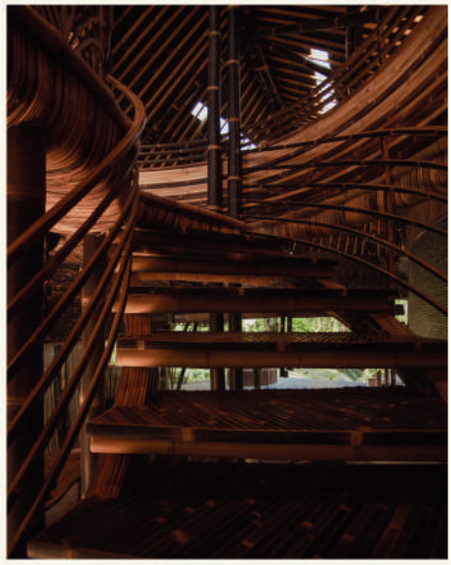




By Mark Sanders

Designed to Inspire

Five bamboo projects at the cutting edge of architecture around the world





Hideout Leaf, Indonesia

Hideout Leaf, the newest project produced by Indonesia-based firm Pablo Luna Studio, pushes the limits of merging architecture and nature.

It's difficult to tell where exterior spaces become interior spaces here. The 32,000-square-foot villa's design was inspired by four falling leaves. Bamboo dominates the design. Black bamboo was used for the structure, flooring and furniture, while yellow bamboo adds contrast and flourishes. Pablo Luna Studio frequently incorporates bamboo in its structures. *Dendrocalamus asper*, *Gigantochloa apus*, *Bambusa blumeana* and *Phyllostachys aurea* are core components of the firm's designs.

Find more details by visiting pablolunastudio.com



Low-Cost Bamboo Homes, Myanmar

Bamboo has long been celebrated as a building material both for its strength and its relatively low cost. In Myanmar, these two qualities are being pushed to new limits.

The construction company Housing NOW is run by Myanmar-based firm Blue Temple. It was tasked with building homes for some of the country's most vulnerable residents, who had been displaced by Myanmar's civil war. Moreover, the structures needed to be strong enough to endure earthquakes, to which the region is particularly prone.

By using small-diameter cane bound together, the homes are extremely stable. In fact, just after Blue Temple's bamboo homes were built, a 7.7 magnitude earthquake struck the region. The homes remained intact.

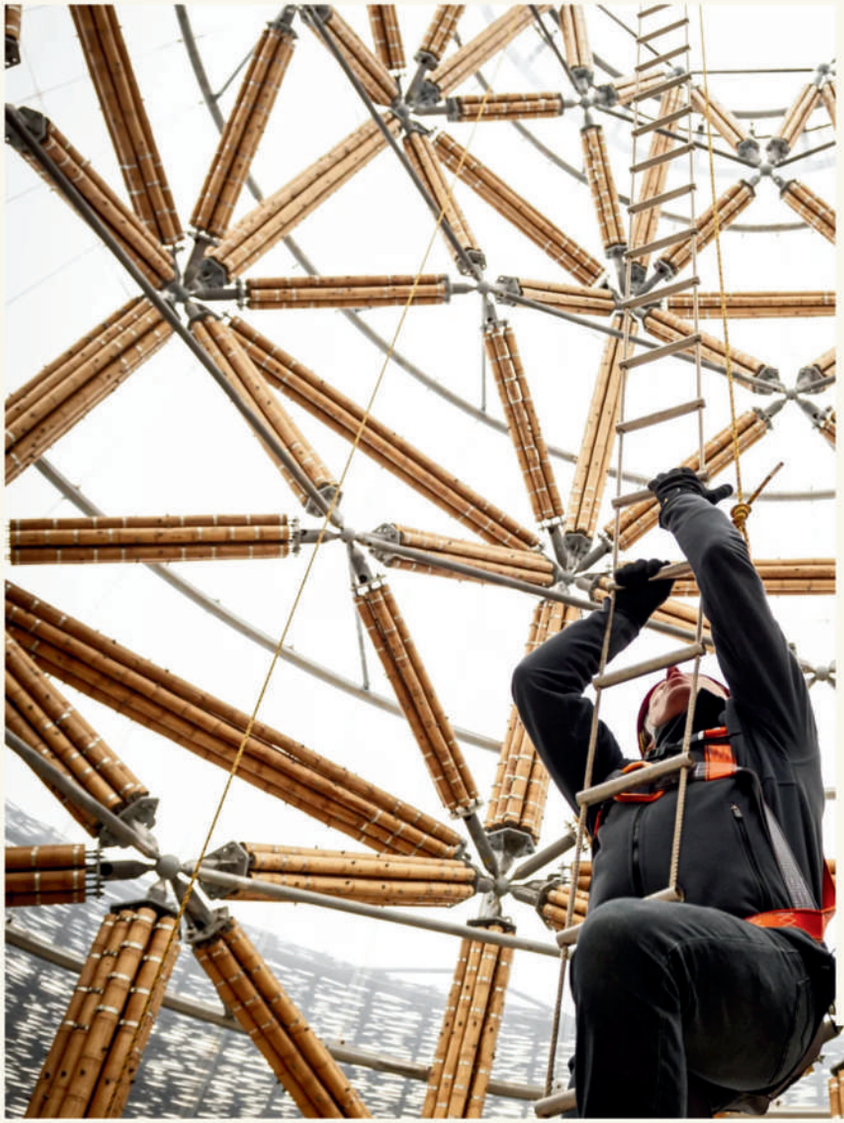
The resiliency of these homes, combined with the low cost of construction – basic models begin at $1,000 – Blue Temple is setting a new standard for bamboo engineering.

Learn more at blue-temple.com





ZOO Planckendael, Belgium



ZOO Planckendael in Mechelen, Belgium is the new home to Europe's tallest bamboo structure. Standing at 90' tall, the zoo's centerpiece is testimony to the power of bamboo and the ingenuity of the engineers who use it.

The tower is a tribute to the elevated nests of the storks that call ZOO Planckendael home. It took five years to design and construct, and uses *Guadua angustifolia* provided by Colombian exporters Guadua Bamboo SAS.

As impressive as the tower is, the fact that it was constructed without design codes to reference makes it a thoroughly groundbreaking project. Future large-scale bamboo structures can borrow from the lessons learned at ZOO Planckendael.

Discover more Guadua Bamboo projects like this at guaduabamboo.com



Bamboo Solar Farm, China

In China, an oceanbound oddity recently made its debut: a floating solar power farm that deeply incorporates bamboo.

The 100kW offshore photovoltaic platform was built in Yantai using engineered bamboo combined with wood, and was developed by the CIMC Ocean Engineering Institute, China Forestry Group Corporation and Beijing Forestry University. The result is a composite material that brings together high strength with light weight and resistance to corrosion. The platform leaves a lighter ecological footprint than steel, and this proof-of-concept floating farm opens opportunities for future bamboo-based solar projects.



The Pangolin Shield, England

The London Design Festival 2026 featured bamboo as a centerpiece of public art. The Pangolin Shield, named for the most trafficked mammal on Earth, is architecture with a message, serving as a pavilion and a call for awareness and action.

It also emphasizes adaptive reuse of materials – the shell is made of different types of shields handled by Indian police officers and rural farmers. Finally, it is an ode to ephemeral architecture. The structure, designed by Studio Saar in collaboration with structural engineers Atelier One, was dismantled shortly after the September 2026 festival. Shields were preserved for reuse, and the bamboo substructure was returned to the earth.
Learn more at studiosaar.design

American Bamboo Society

24714 S Carman Rd
Cheney, WA 99004

To learn more about supporting the ABS and its mission, scan the QR code.

Hideout Leaf villa, Indonesia

