COMMENTARY

# Airpower Has a Mass of Its Own

## Predicting an Air Order-of-Battle for a Taiwan Conflict

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## Abstract

This article examines the strategic and operational challenges of defending Taiwan against China's growing airpower threat. It analyzes the People's Liberation Army's capability to suppress US and allied air operations through massed missile strikes and superior force projection. The discussion focuses on how the United States and its allies can achieve air superiority through technological advancements, resilient basing, and force-multiplying platforms such as collaborative combat aircraft. Additionally, the article explores the role of aerial denial—disrupting Chinese invasion forces through interdiction and sustained air pressure—as well as Taiwan's asymmetric defense strategy to prolong resistance. By assessing historical precedents, emerging technologies, and allied contributions, this study outlines a viable framework for countering the most formidable air threat US forces have faced since World War II. The article ultimately argues that Taiwan's survival will depend not only on American airpower but also on the strength and cohesion of its allies.


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The sheer mass of firepower the People's Liberation Army (PLA) can unleash on air bases and carriers in the western Pacific renders Agile Combat Employment impractical within the First and Second Island Chains. To defend Taiwan, the United States and its allies must find a way to project airpower through the PLA's expanding ring of fire. A formation comprising just 10 percent of China's H-6 bomber force could launch "more than a hundred missiles against a U.S. aircraft carrier strike group or air base," while PLA strike aircraft alone could sustain a barrage of 1,400 missiles per day throughout an extended air campaign. This relentless bombardment would "keep U.S. and allied air bases in the western Pacific suppressed."[1] Worse, China's rapid production of these capabilities ensures an increasingly dire strategic landscape. The United States and its allies must develop the ways and means to defeat this threat. Two core missions shape the fight for air dominance: *air superiority* and *global strike*.

[1] Robert Haddick, *Fire on the Water: China, America, and the Future of the Pacific* (Annapolis: Naval Institute Press, 2022), 97.

## Air Superiority

Airpower theorists as disparate as John Warden and Robert Pape agree on one fundamental truth: air superiority is the prerequisite for any air campaign. The first step in countering the PLA's growing air threat is ensuring its bombs never reach US and allied targets. Pape asserts, "aircraft cannot systematically place bombs on any target set if air operations encounter strong opposition," emphasizing that air superiority is a "necessary step."[2] Warden concurs, calling air superiority the "key to strategic operations." While he acknowledged the difficulty of securing it, he believed not having it was "one of the surest ways to fail."[3]

Air superiority within the Second Island Chain is no longer assured. A RAND study assessing a Taiwan conflict found that China reached rough parity with the United States by 2017.[4] Last year, the PLA's air superiority inventory matched US numbers and is now poised to surpass it. Reports indicate that production of the J-20—China's fifth-generation air dominance platform—has already eclipsed the F-22, with at least 150 units in service and estimates reaching as high as 220.[5] The United States fields just 178 F-22s, and even if all were deployed to the Indo-Pacific, China is producing 40 to 50 new J-20s annually.[6]

The US response is the Next Generation Air Dominance (NGAD) family of systems, already in development and slated for initial delivery by 2030.[7] Designed to replace the F-22, NGAD will not be produced on a one-for-one basis. Even with former Air Force Secretary Frank Kendall's "notional" inventory of 200 NGADs, the United States will remain outnumbered.[8] But quality can offset quantity. Superior capability has long been the defining edge of American airpower—and in the coming contest for air superiority, it must be again.

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[2] Robert A. Pape, "The Limits of Precision-Guided Air Power," *Security Studies* 7, no. 2 (1997), 97, https://doi.org/.

[3] John A. Warden III, "Success in Modern War: A Response to Robert Pape's *Bombing to Win*," *Security Studies* 7, no. 2 (1997), 190, https://doi.org/.

[4] Eric Heginbotham et al., *The U.S.-China Military Scorecard: Forces, Geography, and the Evolving Balance of Power, 1996–2017* (Santa Monica: RAND Corporation, 2015), 330.

[5] Ken Moriyasu, "China's Stealth Fighter Inventory Set to Eclipse America's F-22s," *Nikkei Asia*, 15 February 2023, https://asia.nikkei.com/; and John A. Tirpak, "Pentagon: China Working on Upgrades to Top Stealth Fighter, Manned-Unmanned Teaming," *Air & Space Forces Magazine*, 24 October 2023, https://www.airandspaceforces.com/.

[6] Craig Hoyle, *2025 World Air Forces* (London: Flight Global, 2024), 33, https://www.flightglobal.com/; and Tirpak, "Pentagon: China Working on Upgrades."

[7] John A. Tirpak, "The Future Force," *Air & Space Forces Magazine,* 31 March 2023, https://www.airandspaceforces.com/.

[8] Tirpak, "The Future Force."

**Table 1. US combat aircraft unrefueled ranges and distances, selected Pacific locations.** (Sources: Northrup-Grumman, The Boeing Company, U.S. Air Force, and Hill Aerospace Museum.)

| Airframe | Range | First Island Chain | | Second Island Chain | | Third Island Chain |
|---|---|---|---|---|---|---|
| **B-1** | 6,500 mi[9] | Okinawa | 966 mi | Central Japan | 2,373 mi | Alaska |
| **B-2** | 6,904 mi[10] | Taiwan | 1,711 mi | Guam | 3,945 mi | Hawaii |
| **B-21** | Unspecified* | Philippines | 946 mi | Palau | 3,938 mi | Tonga |
| **B-52** | 8,800 mi[11] | Malaysia | 699 mi | Indonesia | 4,763 mi | New Zealand |
| **F-22** | 1,850 mi[12] | | | | | |
| **F-35** | 1,350 mi[13] | | | | | |
| **NGAD** | TBD | | | | | |

Note: Distances between islands are approximate.

* Sources give a range anywhere from 7,000 to 11,000 mi.

Getting fighters into contested airspace poses another obstacle to securing air superiority in the First and Second Island Chains. While the goal is to establish air superiority before the PLA cripples the ability of the United States and its allies to generate sorties from bases like Guam and Okinawa, such an outcome cannot be assumed. One variant of the NGAD will "have sufficient range to operate in the Pacific with far less tanker support than today's fighters," but even so, the distance between the Third and Second Island Chains remains well beyond the reach of any current fighter.[14]

Yet range is a function of logistics. Tankers can extend fighter operations far beyond their unrefueled maximum range. Framing the challenge as a range problem constrains potential solutions. The real issue is tanker vulnerability. Defense strategist Chris Dougherty notes that red teams in wargames have repeatedly exploited aerial refueling dependencies to devastating effect against American forces.[15] He highlights China's deliberate targeting of "destroying aerial refueling tankers" and calls for a "larger and more diverse fleet of connectors" to reduce risk."[16]

[9] Hill Aerospace Museum, "Boeing B-1B Lancer Specs." Accessed December 6, 2023. https://www.aerospaceutah.org/.

[10] Northrop-Grumman, "B-2 Technical Details." Accessed December 6, 2023. https://www.northropgrumman.com/what-we-do/air/b-2-stealth-bomber/b-2-technical-details

[11] The Boeing Company, "B-52 Technical Specifications," 2025, https://www.boeing.com/.

[12] "F-22 Raptor Fact Sheet" (fact sheet, US Air Force, August 2022), https://www.af.mil/.

[13] "F-35A Lightning II" (fact sheet, US Air Force, April 2014), https://www.af.mil/.

[14] Tirpak, "The Future Force."

[15] Chris Dougherty, *Buying Time: Logistics for a New American Way of War* (Washington: Center for New American Security, 2023), 9.

[16] Dougherty, *Buying Time*, 8–10.

The future US tanker force aims to address this vulnerability. The Next-Generation Aerial-Refueling System (NGAS), a stealth family of systems slated for service by 2040, will integrate with a Tactical Data Link connecting F-22s, F-35s, B-21s, and NGAD aircraft. This network will allow stealth platforms to share battlespace awareness while keeping the NGAS concealed from adversaries but easily located by friendly forces for refueling. Meanwhile, the Air Force is pursuing a "bridge tanker" to fill the gap between the KC-46 and the NGAS, ensuring sustained refueling capability in an increasingly contested environment.[17]

A viable option is the MQ-25, an aerial refueling drone already on order by the US Navy. In 2021, an MQ-25 successfully refueled an F-35, demonstrating its operational potential. While it lacks the stealth characteristics of the NGAS, it has a significantly lower radar cross-section than any other tanker in the US arsenal. It has also launched from an aircraft carrier—proving its flexibility and making its location far less predictable. By providing quick in-theater support and potentially reducing fuel requirements by a factor of five, it strengthens US airpower resilience. Dougherty notes that a single tanker at 1,000 nautical miles from base can deliver the same effect as five tankers at 3,000 nautical miles.[18] With the KC-46, NGAS, and MQ-25, the US tanker fleet will be far more survivable against PLA attacks, allowing the entire fighter force to operate unburdened by unrefueled range limits.

No Indo-Pacific air campaign is possible without allies and partners—and no ally is more critical in a Taiwan scenario than Japan. The Japan Air Self-Defense Force (JASDF) already fields 38 F-35s and plans to acquire over 100 more, along with a small fleet of KC-46 tankers to support operations.[19] Just as significant is Japan's development of the Mitsubishi F-X, a sixth-generation stealth fighter expected to enter service by 2035.[20]

Japan's greatest contribution to air superiority in a Taiwan conflict, however, will not come from any single platform but from its role in enabling airpower to reach the fight. US basing in Japan, South Korea, and other regional allies like the Philippines—or even Thailand—is essential for success. Former Defense Minister and current Prime Minister Ishiba Shigeru has been a steadfast advocate for stronger regional security cooperation amid rising threats from China, Russia, and North Korea. He has pushed to elevate AUKUS—which links the United States, United Kingdom, and Australia—along with its "Pillar II" partners (Japan,

[17] Tirpak, "The Future Force."

[18] Dougherty, *Buying Time*, 12.

[19] Hoyle, *2025 World Air Forces*, 22.

[20] Mike Yeo, "Japan Unveils Timeline for Indigenous Fighter Jet Program," *Defense News,* 9 July 2020, https://www.defensenews.com/.

South Korea, Canada, and New Zealand) into a NATO-like defense framework. His vision includes deeper Japanese integration into the US–Japan alliance, mirroring the US–UK relationship. This would mean an expanded role in US bases in Japan, such as Kadena Air Base in Okinawa, and even forward-deploying Japanese forces to air bases in US territories like Guam.

## Global Strike

Once air superiority is secured, the global strike mission shifts to *aerial denial*—a strategy of coercion through sheer destruction. Aerial denial means breaking enemy forces so decisively that friendly ground troops can seize contested territory with minimal losses. Nowhere is this more relevant than in a Taiwan conflict. Counterintuitively, strategic bombing is the least effective tool for aerial denial. Instead, sustained theater air pressure, combined with ground force operations, proves the most potent coercion strategy.[21]

Operation Desert Storm offers a compelling case study. Airpower shattered Iraq's two pillars of ground resistance: front-line morale and mobile reserves. Iraqi forces remained under constant threat from "hundreds of theater-based aircraft."[22] While B-52s played a critical role, the bomber force alone could not generate the suffocating air pressure needed. The multiplying effect came from F-15s, F-16s, F/A-18s, and A-10s, which relentlessly struck secondary targets and paralyzed Iraqi logistics. Fear, as much as firepower, left front-line units exposed, unable to resupply food, water, medicine, or clothing.[23]

By 2030, the US Air Force will begin fielding collaborative combat aircraft (CCA)—unmanned, autonomous escorts for crewed planes, with a planned ratio of up to five CCAs per fighter or bomber. These drones will provide "affordable mass," delivering the same multiplying effect that manned fighters did in Desert Storm but at a fraction of the cost. Former Secretary Kendall floated an inventory of 1,000 CCAs, a force multiplier that could reshape the balance in an Indo-Pacific fight.[24]

As with air superiority, Japan's growing fleet will contribute to the aerial denial mission. But Taiwan's security depends on its own defense initiatives as well. Taiwan's fourth-generation aircraft—F-16s, Mirage 2000s, and its Indigenous Defense Fighter—offer little to the global strike mission. Instead, Taiwan must focus on

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[21] Pape, "The Limits of Precision-Guided Air Power," 97–101.

[22] Robert A. Pape, *Bombing to Win: Air Power and Coercion in War*, (Ithica, N.Y.: Cornell University Press, 1996), 246, https://www.jstor.org/stable/10.7591/j.ctt1287f6v.

[23] Pape, *Bombing to Win*, 248.

[24] Tirpak, "The Future Force."

asymmetric defense, maximizing resistance against invasion until the United States, Japan, and other allies can respond.

Lessons from Afghanistan, Nagorno-Karabakh, and Ukraine underscore the effectiveness of cheap, lethal weapons against expensive, technologically advanced systems. Former Chief of the General Staff Lee Hsi-ming (2017–2019) has championed an asymmetric strategy of "using the small to control the large" in a whole-of-society defense. This so-called "porcupine strategy" prioritizes small, mobile, distributed, and lethal weapons capable of countering the People's Republic of China's numerical and material superiority.[25] Taiwan, unlike Ukraine, has no land borders and limited strategic depth, making mobility and concealment paramount. A survivable defense does not turn time into Taiwan's greatest asset—time already is its greatest asset. The point is to buy as much of it as possible. Investments in portable missiles, mines, mobile radars, and artillery batteries make Taiwan a harder target and extend the window for allied forces to respond, mitigating the immense logistical challenge of deploying them to the theater.

## Conclusion

Defending Taiwan requires an air campaign that can withstand and counter the full weight of PLA bombardment across the First and Second Island Chains. Success hinges on achieving air superiority—not merely by matching China's growing numbers but by outpacing them through technological superiority, operational ingenuity, and resilient force projection. The United States and its allies must secure access to the fight, leveraging stealth, range, and survivable aerial refueling networks to ensure fighters and bombers remain in the battlespace.

Air superiority, however, is only the first step. Once secured, it enables a strategy of aerial denial—crippling Chinese forces through a fusion of strategic bombing, interdiction, and mass-multiplying platforms like CCAs. Yet airpower alone cannot hold the line. A ground strategy of asymmetric, whole-of-society defense is essential to denying Beijing a quick victory. Taiwan's ability to prolong resistance through mobile, distributed, and lethal defenses—while US and allied forces build combat power—may ultimately decide the conflict's outcome.

This is the most formidable air threat US forces have faced since World War II. Winning requires more than American resolve; it demands a coalition willing to act decisively. The survival of Taiwan does not rest on the United States alone—but on how much the United States can depend on its allies. ✪

[25] Tommy Jamison, "Taiwan's Theory of the Fight," *War on the Rocks*, 21 February 2024, https://warontherocks.com/.

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