Tarbiyah Islamiyah: Jurnal Ilmiah Pendidikan Agama Islam
ISSN: 2579-714X (p); 2829-5919 (e), Vol. 16 (1), 2026, pp. 99-118
DOI: https://doi.org/10.18592/jtipai.v16i1.19977

INTEGRATING QUR'ANIC INSIGHTS AND ZOOLOGICAL KNOWLEDGE IN ISLAMIC RELIGIOUS EDUCATION: IMPLICATIONS FOR BIOLOGY LEARNING IN ISLAMIC SCHOOLS AND MADRASAS

Hafiz Aon Muhammad
Department of Quranic Studies, The Islamia University of Bahawalpur
ghulamaon02@gmail.com

Maria Ashraf Dogar
Department of Islamic Studies, Emerson University Multan, Pakistan
drmariaashraf12@gmail.com

Muftia Namal Khan
Women Institute Markaz Al Haram, Pakistan
namalKhan89@gmil.com

Afifa Tabassum
Department of Islamic Studies, Govt. Graduate College W Sahiwal, Pakistan
afifatabasum04@gmail.com

Samina Anjum
Department of Social and Allied Sciences, Cholistan University of Veterinary and Animal Sciences, Bahawalpur, Pakistan
saminaanjum@cuvas.edu.pk

Abdul Rouf Zahid
Department of Islamic Studies, University of Sargodha, Sargodha, Pakistan
abdul.rouf@uos.edu.pk

Abstract:
This study examines how Qur'anic insights into animal life and contemporary zoological knowledge can be integrated into Islamic Religious Education (PAI), particularly biology-related learning in Islamic schools and madrasas. Rather than treating scientific knowledge as a means of validating Qur'anic verses, the study adopts an integrative educational perspective in which Qur'anic teachings provide ethical, spiritual, and reflective dimensions for understanding biological phenomena. Using a qualitative and comparative approach, selected Qur'anic verses concerning animal communities, domesticated animals, honeybees, ants, biodiversity, and ecological relationships were analyzed alongside relevant zoological literature and studies on Qur'an–science integration in Islamic education. The findings indicate that Qur'anic references to animals can be transformed into contextual learning resources that connect biological concepts with Islamic values, including stewardship, gratitude, responsibility, biodiversity conservation, and reflection on creation. The study further identifies several possible applications in PAI and integrated science learning, including contextual learning, inquiry-based learning, interdisciplinary learning, and the development of Qur'an-integrated teaching materials. These approaches can help students understand zoological concepts while simultaneously developing ethical and spiritual awareness of human relationships with animals and the environment. The study therefore argues that Qur'an–zoology integration should be positioned not primarily as scientific verification of revelation, but as an educational framework for developing meaningful, contextual, and value-oriented learning in Islamic schools and madrasas.

Keywords*: Qur'anic integration, Islamic Religious Education, PAI, zoology education, Islamic schools, madrasas, integrated learning.*

Introduction

The Qur'an's references to animals provide not only theological and ethical insights but also opportunities for developing contextual learning in Islamic education. In the context of Islamic Religious Education (PAI), Qur'anic references to animal life can be connected with scientific concepts to help students understand the relationship between religious values and empirical knowledge. Such integration is particularly relevant in Islamic schools and madrasas, where students encounter religious and scientific subjects within the same educational environment. Previous studies have demonstrated the potential of integrating Qur'anic and Hadith studies into biology learning and developing classroom instruction that connects Qur'anic teachings with biological science. This approach suggests that Qur'anic verses concerning animals can function as educational resources rather than merely as objects of scientific verification. Through appropriate pedagogical strategies, concepts such as animal communities, biodiversity, animal behavior, domestication, ecological relationships, and human responsibility toward living creatures can be transformed into learning experiences that combine scientific understanding with Islamic ethical values.

Accordingly, this study shifts the discussion from the scientific validation of Qur'anic verses toward their educational application. The central question of this study is: How can Qur'anic insights into animal life and contemporary zoological knowledge be integrated into PAI and biology-related learning in Islamic schools and madrasas, and what learning strategies and educational values can be developed from such integration?

To address this question, we examine several illustrative cases of Qur'anic animal descriptions and their modern zoological parallels. We focus on creatures explicitly mentioned in the Qur'an—including insects (bees, ants), birds, and livestock (cattle and camels)—because these span diverse biological groups and have been especially noted in scripture. For each example, we summarize the Qur'anic account and highlight points of contact with contemporary science. Throughout, our aim is to show how an integrated approach can deepen understanding in both domains: the Qur'an often provides moral or purpose-based insights about animals, while zoology offers detailed empirical explanations of their biology. In this sense, the study is guided by the objective of illuminating the *reason* behind creation that the scripture alludes to, alongside the *mechanism* described by biology. As Nizamani et al. [1] argue, the Qur'anic narrative tends to explain "the reason behind the creation of these animals and how humans can utilize them," whereas zoology explains their physical traits, behaviors, and evolution.

Several prominent Qur'anic passages provide concrete examples of such parallels. For instance, Sūrah An-Nahl (16:68–69) speaks about honeybees: God "inspired" the bee to build its hives and produce honey from various fruits, saying that "from their bellies comes a drink of varying colors, wherein is healing for people." This description has drawn attention because it remarkably reflects entomological facts: modern apiculture confirms that worker bees (the hive builders) are female, and that honey contains natural antibiotics and antioxidants beneficial to health. Although classical commentators treated the verse as a sign of divine wisdom, today scientists note the bee's multi-chambered stomach and honey's medicinal properties as scientific realities. Likewise, the story of the ants in Sūrah An-Naml (27:18–19)—where a queen ant warns her colony of danger to avoid being crushed by Solomon's caravan—resonates with modern biology. Entomologists have shown that ants communicate through

[1] Nazir Nizamani, Naeem Arain, Noor S. Ilyas, Ali Mehar, Amna Bibi, and Lubna Riaz, "Examining the Quranic Viewpoint on Fauna and Zoology: an Extensive Analysis of the facts and Insights," History of Medicine 10, no. 2 (2024): 1073–83.

pheromone "languages" and organized behaviors, so the notion of an ant "speaking" to others is analogous to insect chemical signaling. Birds are mentioned repeatedly in the Qur'an too: for example, in the account of the hoopoe (Hudhud) in 27:20–22, and in general verses noting that flocks of migrating birds, driven by God's command, cross the sky in orderly fashion. Ornithologists have since documented such migratory patterns and formation flying, giving a natural-science context to the Qur'anic imagery. In each of these cases—bees, ants, birds—the Qur'an's portrayal of animal social organization and function finds echoes in zoological findings, suggesting that the scripture anticipated aspects of animal behavior that modern science has later explored[2] . emphasize that references to animals in the Qur'an are "not merely symbolic but serve as profound lessons in spirituality, ethics, and ecological balance," and they advocate an approach "integrating Quranic exegesis with contemporary scientific insights" to uncover animals' ecological and medicinal significance.

Large domesticated animals also feature prominently. The Qur'an repeatedly calls attention to cattle and camels, often highlighting their utility for human livelihood. For example, a famous verse (88:17) asks rhetorically, "Do they not look at the camels – how they were created?" Classical and modern commentators agree that this invites thoughtful observation of the camel's specialized anatomy. Indeed, contemporary zoology confirms that camels possess unique adaptations—fat-filled humps for energy storage, highly efficient water conservation mechanisms, and blood cells that tolerate dehydration—all traits that enable survival in desert conditions. In other passages the Qur'an underscores the role of cows, sheep, and goats as sources of food, clothing, and agriculture (e.g., Qur'an 6:142; 16:5–8). Zoological science corroborates that these ruminants have digestive systems and behaviors well-suited to grazing and production of milk and meat. Thus, the Qur'an's livestock narratives, while theological in tone, echo later scientific understanding of these animals' biology. As Nizamani et al. [3] note, the Qur'an "explains the reason behind the creation of these animals and how humans can utilize them," whereas modern zoology details their bodily structure and evolution. In this vein, Shazia and Bibi (2024)[4] argue that such Qur'anic teachings underscore the importance of biodiversity and sustainability: they "bridge religious wisdom with scientific knowledge" to highlight humanity's responsibility for stewardship of nature (Figure 1).

[2] Shazia and Amna Bibi, "A Research Review of the Animals Mentioned in the Holy Quran and Their Effects on Human Life," *Al-Anfal* 2, no. 4 (2024): 129–45.

[3] Nazir Nizamani, Naeem Arain, Noor S. Ilyas, Ali Mehar, Amna Bibi, and Lubna Riaz, "Examining the Quranic Viewpoint on Fauna and Zoology: an Extensive Analysis of the facts and Insights," History of Medicine 10, no. 2 (2024): 1073–83.

[4] Shazia and Amna Bibi, "A Research Review of the Animals Mentioned in the Holy Quran and Their Effects on Human Life," *Al-Anfal* 2, no. 4 (2024): 129–45.

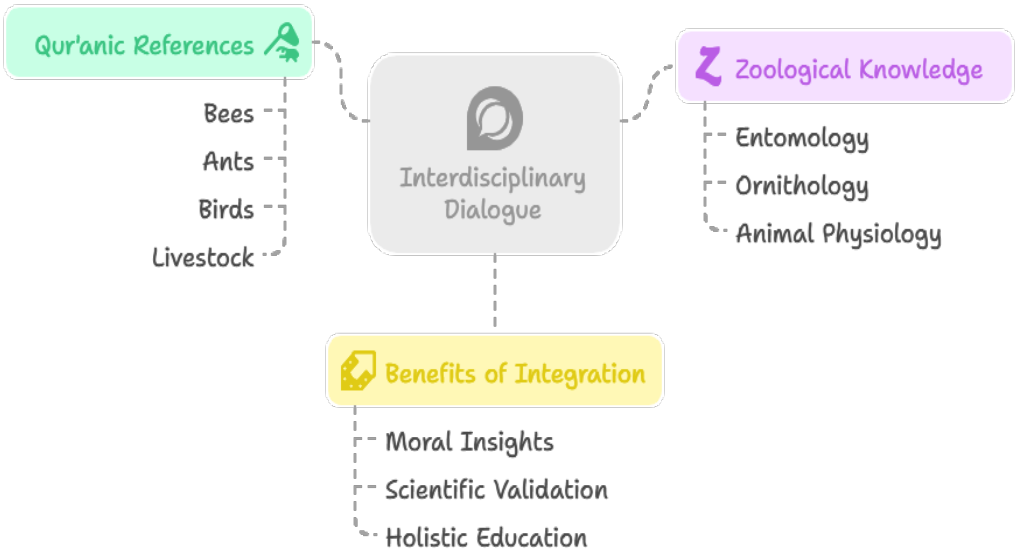

Figure 1 Interdisciplinary Dialogue Between Qur'anic References and Zoological Knowledge for Moral Insights, Scientific Validation, and Holistic Education

The parallels outlined above illustrate the benefit of an interdisciplinary dialogue between religious studies and the life sciences. Scholars of tafsīr (Qur'anic exegesis) have found that scientific perspectives can enrich understanding of scripture and vice versa. Munawar (2025)[5] explains that scientific exegesis of the Qur'an aims not merely at proving miraculous correspondence, but at "improving our understanding of the Quran, building trust in God, [and] reducing conflicts between science and faith," while also "encouraging experts from different fields to join their efforts." In other words, integrating zoological insight with scriptural interpretation can help readers appreciate both the text's meanings and the workings of creation without seeing them as contradictory. Likewise, authors like Nizamani et al. (2024)[6] suggest incorporating the Qur'an's wisdom into science education; they argue that zoology curricula would benefit from including the religious perspective on life's purpose, making science learning more holistic. By fostering such cross-disciplinary exchange, researchers hope to advance a more comprehensive view of life: one that respects the Qur'anic vision of animals as God's signs and at the same time follows zoology's empirical rigor. The present article therefore proceeds to analyze specific Qur'anic animal passages in the light of contemporary zoological knowledge, with the guiding goal of demonstrating that interdisciplinary inquiry can enrich both religious insight and scientific understanding.

Method

This study employs a qualitative, descriptive, and integrative approach to examine the educational application of Qur'anic insights and zoological knowledge in Islamic Religious

[5] Sana Munawar, "Exploring Scientific Exegesis (Al-Tafsīr al-ʿIlmī) of the Qur'an: Merits, Challenges, and Interpretive Boundaries," *Journal of Religion & Society* 3, no. 2 (2025): 414–23.

[6] Nazir Nizamani, Naeem Arain, Noor S. Ilyas, Ali Mehar, Amna Bibi, and Lubna Riaz, "Examining the Quranic Viewpoint on Fauna and Zoology: an Extensive Analysis of the facts and Insights," History of Medicine 10, no. 2 (2024): 1073–83.

Education (PAI). The methodology is designed not to verify Qur'anic statements through modern science, but to identify how Qur'anic references to animals can be transformed into contextual learning resources and integrated learning strategies for Islamic schools and madrasas.

The research consists of four stages: (1) identification of Qur'anic verses related to animal life and ecological phenomena; (2) analysis of their theological, ethical, and educational meanings through selected tafsīr sources; (3) identification of relevant zoological concepts from scientific literature; and (4) formulation of pedagogical applications linking the Qur'anic values and zoological concepts to PAI and biology-related learning. The fourth stage constitutes the main analytical component of the study because it translates the Qur'an–science relationship into an educational framework. (Figure 2).

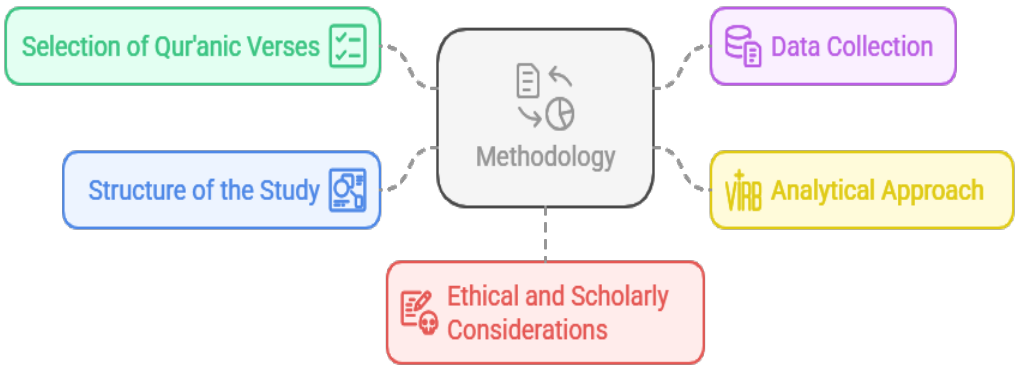

Figure 2 Methodology of Study

Selection of Qur'anic Verses

Key Qur'anic verses were selected based on their explicit references to animals, their behaviors, roles in human sustenance, or broader biological themes such as creation and embryology. The verses chosen include Surah Al-An'am (6:38), Al-Hud (11:6), An-Nahl (16:5–8, 16:66, 16:68–69), Al-Anbiya (21:30), Al-Hajj (22:5), Al-Mu'minun (23:12–14), An-Nur (24:45), An-Naml (27:18–19), Al-Ankabut (29:41), Luqman (31:10), Ya-Sin (36:36), Az-Zumar (39:6), Adh-Dhariyat (51:49), and Al-Insan (76:2). These verses were identified for their detailed descriptions of animal communities (e.g., bees, ants), provisions (e.g., livestock), and biological phenomena (e.g., life originating from water, embryonic development). The translations used are primarily from *The Clear Quran® Series* by Dr. Mustafa Khattab for its clarity and fidelity to the Arabic text, supplemented by classical tafsīr (e.g., Qutb, 2004; Asad, 1980) to provide theological context and interpretative depth.

Data Collection

Data collection was conducted in two phases: theological and scientific. For the theological component, classical and contemporary tafsīr sources were consulted to elucidate the meanings of the selected verses. Works by scholars such as Sayyid Qutb (*In the Shade of the Qur'an*) and Muhammad Asad (*The Message of the Qur'an*) were analyzed to understand traditional interpretations of terms like *umam* (communities), *dabbah* (living creatures), and metaphorical descriptions (e.g., "three veils of darkness"). These sources were accessed through academic libraries and digital archives of Islamic scholarship.

For the scientific component, peer-reviewed journals and published books were sourced to identify zoological and biological parallels to the Qur'anic descriptions. Databases such as PubMed, ScienceDirect, and Google Scholar were used to retrieve studies on topics including

animal social structures, domestication, honeybee behavior, embryonic development, and the origin of life in aquatic environments. Key texts included works on honey's medicinal properties [7], equid domestication[8] , and evolutionary biology [9]. Only sources from reputable, peer-reviewed journals or established academic publishers were included to ensure credibility. For example, studies on honeybee eusociality and ant communication were drawn from journals like *Asian Pacific Journal of Tropical Biomedicine* and books such as *The Biology of the Honey Bee*[10].

Analytical Approach

Each selected verse was first analyzed for its theological significance using tafsīr, focusing on how classical and modern scholars interpret references to animals and biological processes. These interpretations were then juxtaposed with scientific findings to assess alignments or resonances. For instance, the Qur'anic concept of animals as *umam* (6:38) was compared to ecological studies on species' social structures, while references to life originating from water (21:30, 24:45) were evaluated against theories of abiogenesis in aquatic environments. The analysis avoided imposing modern scientific frameworks onto the Qur'anic text, instead seeking phenomenological or conceptual parallels that respect the text's theological intent.

Structure of the Study

The article is structured to provide a comprehensive examination of the topic. The introduction outlines the historical and theological context of Qur'anic references to animals, situating the study within the broader science-religion dialogue. The results section presents detailed analyses of each verse, integrating tafsīr with scientific data, supported by APA 7th edition citations. The discussion synthesizes findings, exploring implications for interdisciplinary scholarship. A reference list ensures transparency and traceability of all sources.

Ethical and Scholarly Considerations

To maintain academic rigor, only peer-reviewed or authoritative sources were used for scientific claims, and theological interpretations were drawn from widely respected tafsīr. The study acknowledges the Qur'an's primary role as a spiritual text, ensuring that scientific comparisons do not distort its intended meanings. By engaging with both Islamic scholarship and modern zoology, this research aims to contribute to a nuanced understanding of how religious texts and scientific knowledge can inform each other.

Discussion

This report expands on the provided analysis by incorporating additional Quranic verses related to animal life, supported by explanations from peer-reviewed journals and published books.

---

[7] Nour El-Din, M. M., and F. M. Hamada. "Honey: Its Medicinal Property and Antibacterial Activity." Asian Pacific Journal of Tropical Biomedicine 1, no. 2 (2011): 154–60.

[8] Librado, Pablo, et al. "The origins and spread of domestic horses from the Western Eurasian steppes." Nature 598, no. 7882 (2021): 634–40.

[9] Cavalier-Smith, Thomas. "Rooting the tree of life by transition analyses." Biological Direct 1, no. 1 (2006): 19.

[10] Winston, Mark L. The Biology of the Honey Bee. Cambridge, MA: Harvard University Press, 1991.

Original Verses and Explanations

Qur'an 6:38 – Animal Communities

وَمَا مِن دَآبَّةٍ فِى ٱلْأَرْضِ وَلَا طَـٰٓئِرٍ يَطِيرُ بِجَنَاحَيْهِ إِلَّآ أُمَمٌ أَمْثَالُكُم ۚ مَّا فَرَّطْنَا فِى ٱلْكِتَـٰبِ مِن شَىْءٍ ۚ ثُمَّ إِلَىٰ رَبِّهِمْ يُحْشَرُونَ

Translation: "*There is no animal on land, nor a bird flying with its wings, but are communities like you. We neglected nothing in the Scripture. Then to their Lord they will be gathered.*"

This verse asserts that all animals, including birds, form communities (umam) similar to human societies. Classical tafsir, such as that by Sayyid Qutb, interprets "umam" as indicating organized ways of life unique to each species, involving interactions and lifestyles. Modern zoology supports this, noting that even simple animal groups, like breeding pairs, can form complex societies under favorable conditions. Ecological studies further confirm that species live in structured groups, such as flocks, schools, or prides, with collective behaviors for survival and reproduction. Zoology recognizes social structures across species, from eusocial insects like bees to mammalian groups like lions, aligning with the Quranic view of animals as communities[11,12] (Figure 3).

Characteristic	Animal Communities	Domestic Cattle and Equids	Honeybees
Social Structures	Organized societies	Not directly addressed	Hive-based colonies
Utility to Humans	Not directly addressed	Warmth, food, transport	Honey production
Divine Guidance/Inspiration	Communities like humans	Created for human benefit	Instinct to build hives

Figure 3 Quranic Perspective on Animal Attributes

Qur'an 16:5–8 – Domestic Cattle and Equids

وَٱلْأَنْعَـٰمَ خَلَقَهَا ۗ لَكُمْ فِيهَا دِفْءٌ وَمَنَـٰفِعُ وَمِنْهَا تَأْكُلُونَ ٥ وَلَكُمْ فِيهَا جَمَالٌ حِينَ تُرِيحُونَ وَحِينَ تَسْرَحُونَ ٦ وَتَحْمِلُ أَثْقَالَكُمْ إِلَىٰ بَلَدٍ لَّمْ تَكُونُوا۟ بَـٰلِغِيهِ إِلَّا بِشِقِّ ٱلْأَنفُسِ ۚ إِنَّ رَبَّكُمْ لَرَءُوفٌ رَّحِيمٌ ٧ وَٱلْخَيْلَ وَٱلْبِغَالَ وَٱلْحَمِيرَ لِتَرْكَبُوهَا وَزِينَةً ۚ وَيَخْلُقُ مَا لَا تَعْلَمُونَ ٨

Translation. "*And the livestock—He created them for you. In them are warmth and benefits for you, and of them you eat. And there is beauty in them for you, when you bring them home, and when you drive them to pasture. And they carry your loads to territory you could not have reached without great hardship. Your Lord is Clement and Merciful. And the horses, and the mules, and the donkeys—for you to ride, and for luxury. And He creates what you do not know.*"

This passage highlights the utility of domesticated animals like cattle, horses, mules, and donkeys, noting their provision of warmth (wool, hides), food (meat, milk), and transport.

[11] Seeley, Thomas D. Honeybee Democracy. Princeton, NJ: Princeton University Press, 2010.

[12] Zahid, Syed Umer, Mahwish Batool, and Syed Aftab Alam. "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights." International Research Journal on Islamic Studies 5, no. 2 (2023): 1–11.

Classical commentators explain "warmth" as materials like wool, and "benefits" as labor and sustenance. Zoologically, this aligns with the domestication of cattle (e.g., cows, sheep) for milk and meat, and equids (genus Equus) for transport. Genomic studies confirm that horses (*Equus caballus*) and donkeys (*Equus asinus*) were domesticated to revolutionize trade and travel. The verse's depiction of livestock utility mirrors zoological understanding of domestication's impact on human civilization (Zahid et al., 2023) [13](Figure 4).

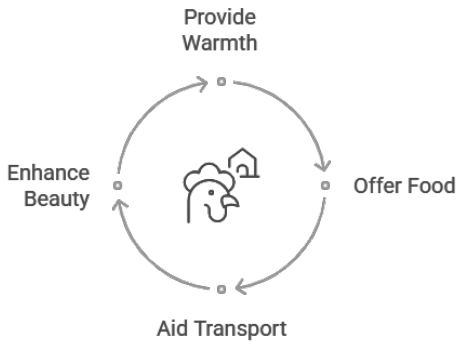

Figure 4 Cycle of Domestic Animal Utility

Qur'an 16:68–69 – Honeybees

وَأَوْحَىٰ رَبُّكَ إِلَى ٱلنَّحْلِ أَنِ ٱتَّخِذِى مِنَ ٱلْجِبَالِ بُيُوتًا وَمِنَ ٱلشَّجَرِ وَمِمَّا يَعْرِشُونَ ٦٨ثُمَّ كُلِى مِن كُلِّ ٱلثَّمَرَٰتِ فَٱسْلُكِى سُبُلَ رَبِّكِ ذُلُلًا ۚ يَخْرُجُ مِنۢ بُطُونِهَا شَرَابٌ مُّخْتَلِفٌ أَلْوَٰنُهُۥ فِيهِ شِفَآءٌ لِّلنَّاسِ ۗ إِنَّ فِى ذَٰلِكَ لَءَايَةً لِّقَوْمٍ يَتَفَكَّرُونَ ٦٩

Translation. "*And your Lord inspired the bee: "Set up hives in the mountains, and in the trees, and in what they construct." Then eat of all the fruits, and go along the pathways of your Lord, with precision. From their bellies emerges a fluid of diverse colors, containing healing for the people. Surely in this is a sign for people who reflect.*"

This verse describes the behavior of honeybees, noting their divinely inspired instinct to build hives and produce honey with medicinal properties. Tafsir, such as Maududi's, emphasizes the instinctual guidance of bees to construct hives in safe locations. Scientifically, honeybees (*Apis mellifera*) build combs in sheltered cavities and produce honey with antiseptic and wound-healing properties, as confirmed by pharmacological research (Figure 5). Studies validate honey's antimicrobial effects, supporting the Quranic claim of "healing for people" [14,15].

[13] Zahid, Syed Umer, Mahwish Batool, and Syed Aftab Alam. "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights." International Research Journal on Islamic Studies 5, no. 2 (2023): 1–11.

[14] Nour El-Din, M. M., and F. M. Hamada. "Honey: Its Medicinal Property and Antibacterial Activity." Asian Pacific Journal of Tropical Biomedicine 1, no. 2 (2011): 154–60.

[15] Winston, Mark L. The Biology of the Honey Bee. Cambridge, MA: Harvard University Press, 1991.

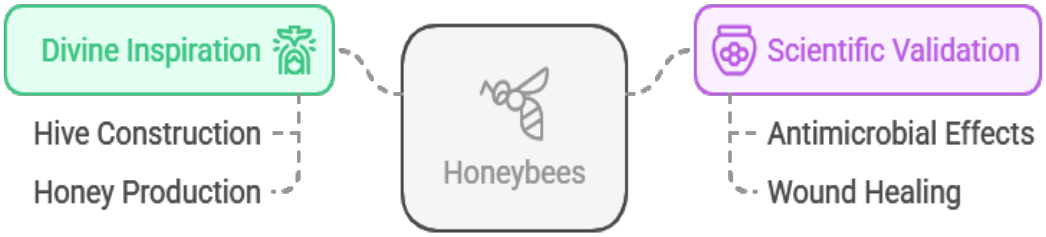

Figure 5 Honeybees inspiration and Scientific validation

Qur'an 24:45 – Origin of Living Creatures

وَٱللَّهُ خَلَقَ كُلَّ دَآبَّةٍ مِّن مَّآءٍۖ فَمِنْهُم مَّن يَمْشِى عَلَىٰ بَطْنِهِۦ وَمِنْهُم مَّن يَمْشِى عَلَىٰ رِجْلَيْنِ وَمِنْهُم مَّن يَمْشِى عَلَىٰٓ أَرْبَعٍ ۚ يَخْلُقُ ٱللَّهُ مَا يَشَآءُ ۚ إِنَّ ٱللَّهَ عَلَىٰ كُلِّ شَىْءٍ قَدِيرٌ ٤٥

Translation. "*Allah created every living creature from water. Some of them crawl on their bellies, and some walk on two feet, and others walk on four. Allah creates whatever He wills. Allah is Capable of everything.*"

This verse states that all living organisms originate from water, classifying animals by locomotion (crawling, bipedal, quadrupedal). Tafsir by Asad interprets "dabbah" as all animate life, with the locomotion categories reflecting observable movement patterns. Biologically, this aligns with the fact that all life forms are aqueous (cells ~70% water), and life likely originated in oceans, possibly near hydrothermal vents. The locomotion categories correspond to broad zoological groupings (e.g., reptiles, birds, mammals) (Figure 6). The verse's emphasis on water as the origin of life mirrors evolutionary biology's aquatic origin hypothesis[16].

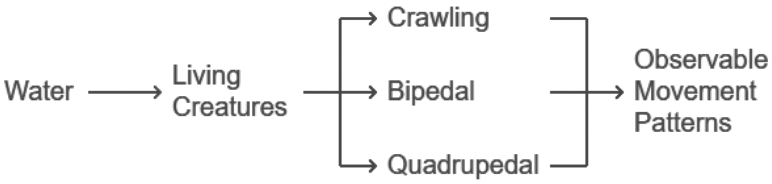

Figure 6 Origin and Classification of Living Creatures

Qur'an 31:10 – Earth's Creatures and Rain

خَلَقَ ٱلسَّمَٰوَٰتِ بِغَيْرِ عَمَدٍ تَرَوْنَهَا ۖ وَأَلْقَىٰ فِى ٱلْأَرْضِ رَوَٰسِىَ أَن تَمِيدَ بِكُمْ وَبَثَّ فِيهَا مِن كُلِّ دَآبَّةٍ ۚ وَأَنزَلْنَا مِنَ ٱلسَّمَآءِ مَآءً فَأَنۢبَتْنَا فِيهَا مِن كُلِّ زَوْجٍ كَرِيمٍ ١٠

Translation. "*He created the heavens without pillars that you can see, and placed stabilizers on earth lest it shifts with you, and scattered throughout it all kinds of creatures. And from the sky We sent down water, and caused to grow therein of every noble pair.*"

This verse notes the dispersion of creatures across the earth, linked to rain sustaining ecosystems. Theological commentary sees this as a call to reflect on biodiversity. Zoologically, it aligns with studies of species distribution across environments, supported by precipitation-

[16] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11

driven food chains (Figure 7). Ecology confirms that rainfall sustains ecosystems, enabling diverse fauna and flora, as implied in the verse [17].

Figure 7 Cycle of Life and Rain

Qur'an 51:49 – Pairs in Creation

وَمِن كُلِّ شَيْءٍ خَلَقْنَا زَوْجَيْنِ لَعَلَّكُمْ تَذَكَّرُونَ ٤٩

Translation. "*We created all things in pairs, so that you may reflect and ponder.*"

This verse highlights that creations come in pairs, interpreted as male and female for reproduction. Scientifically, sexual dimorphism is widespread in animals and plants, with most species reproducing via complementary sexes. This reflects the biological principle of genetic recombination for species propagation. The verse's focus on pairs aligns with zoological studies of sexual reproduction across species[18].

Qur'an 36:36 – Creation in Pairs

سُبْحَانَ ٱلَّذِى خَلَقَ ٱلْأَزْوَٰجَ كُلَّهَا مِمَّا تُنۢبِتُ ٱلْأَرْضُ وَمِنْ أَنفُسِهِمْ وَمِمَّا لَا يَعْلَمُونَ ٣٦

Translation. *"Glory be to Him who created all the pairs; of what the earth produces, and of their own selves, and of what they do not know."*

Similar to 51:49, this verse underscores the creation of pairs, interpreted as male and female across species. Zoologically, this reflects the prevalence of sexual reproduction, where genetic material from two sexes ensures diversity (Figure 8). The verse aligns with the biological principle of sexual dimorphism in most multicellular organisms[21].

[17] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11

[18] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11

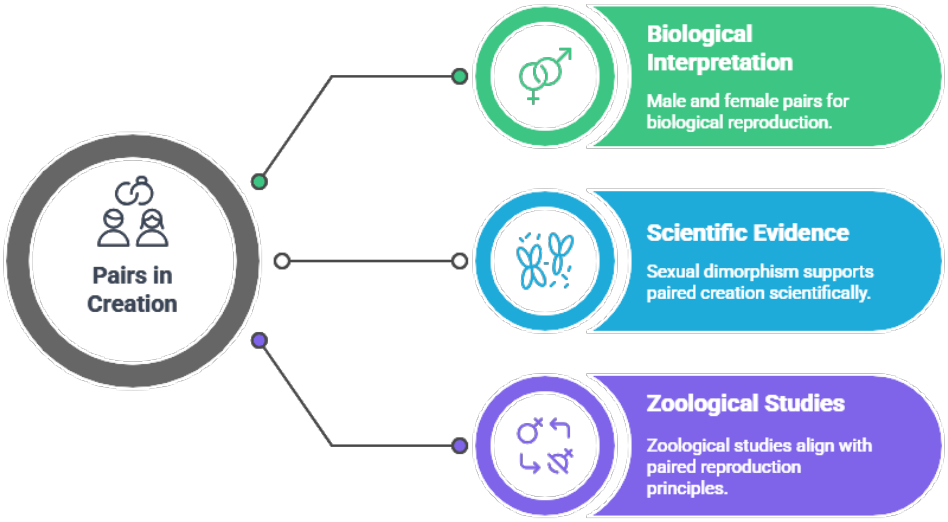

Figure 8 Pairs in creation

Qur'an 21:30 – Creation from Water

أَوَلَمْ يَرَ ٱلَّذِينَ كَفَرُوٓا۟ أَنَّ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضَ كَانَتَا رَتْقًا فَفَتَقْنَٰهُمَا ۖ وَجَعَلْنَا مِنَ ٱلْمَآءِ كُلَّ شَىْءٍ حَىٍّ ۖ أَفَلَا يُؤْمِنُونَ ٣٠

Translation. "*Do the disbelievers not see that the heavens and the earth were one mass, and We tore them apart? And We made from water every living thing. Will they not believe?*"

This verse emphasizes water as the source of all life, a concept echoed in scientific theories that life began in aquatic environments, possibly near hydrothermal vents. The verse's reference to the separation of heavens and earth may also suggest cosmic origins, complementing biological insights (Figure 9). Evolutionary biology supports the aquatic origin of life, aligning with the verse's claim [19].

Figure 9 Creation from Water

Qur'an 16:66 – Milk from Cattle

وَإِنَّ لَكُمْ فِى ٱلْأَنْعَٰمِ لَعِبْرَةً ۖ نُّسْقِيكُم مِّمَّا فِى بُطُونِهِۦ مِنۢ بَيْنِ فَرْثٍ وَدَمٍ لَّبَنًا خَالِصًا سَآئِغًا لِّلشَّٰرِبِينَ ٦٦

[19] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11.

Translation. *"And there is a lesson for you in cattle: We give you a drink from their bellies, from between waste and blood, pure milk, refreshing to the drinkers."*

This verse describes milk production in cattle, noting its purity despite emerging from complex physiological processes. Tafsir explains this as a figurative depiction of milk formation from digested food and blood in mammary glands. Modern physiology confirms that mammary alveoli filter nutrients from blood to produce milk, aligning with the verse's imagery (Figure 10). The verse's description matches zoological understanding of lactation in mammals (Zahid et al., 2023).[20]

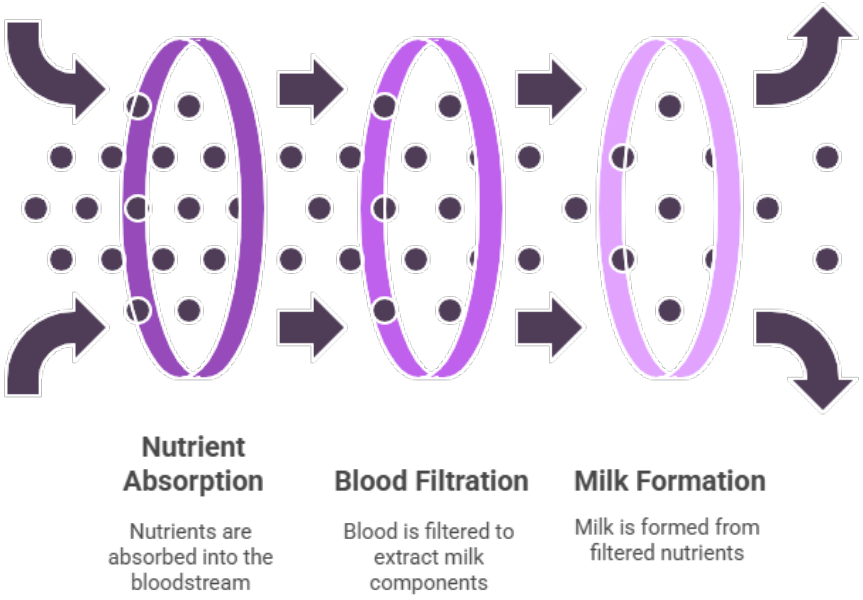

Figure 10 Milk production process in Cattle

Qur'an 11:6 – Provision for Every Creature

وَمَا مِن دَآبَّةٍ فِى ٱلْأَرْضِ إِلَّا عَلَى ٱللَّهِ رِزْقُهَا وَيَعْلَمُ مُسْتَقَرَّهَا وَمُسْتَوْدَعَهَا ۚ كُلٌّ فِى كِتَـٰبٍ مُّبِينٍ ٦

Translation. *"There is no moving creature on earth but its sustenance depends on Allah. And He knows where it lives and where it rests. Everything is in a Clear Book."*

This verse asserts that Allah provides for every creature, knowing their habitats. Ecologically, this aligns with the concept of ecological niches, where each species has specific environmental needs for survival (Figure 11). Modern ecology confirms that species' distributions and diets are regulated by environmental factors, matching the verse's claim[21].

[20] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11.

[21] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11

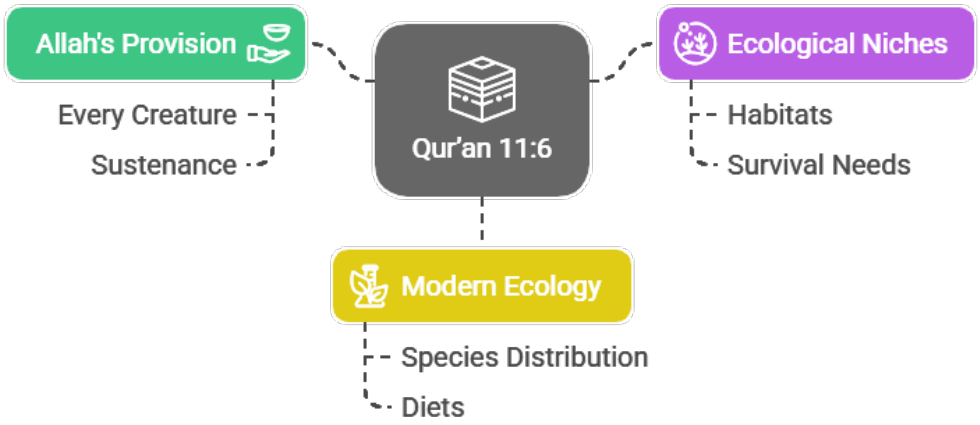

Figure 11 Provision of Ecological Alignment

Qur'an 27:18–19 – Ants

حَتَّىٰٓ إِذَآ أَتَوۡا عَلَىٰ وَادِ ٱلنَّمۡلِ قَالَتۡ نَمۡلَةٞ يَٰٓأَيُّهَا ٱلنَّمۡلُ ٱدۡخُلُواْ مَسَٰكِنَكُمۡ لَا يَحۡطِمَنَّكُمۡ سُلَيۡمَٰنُ وَجُنُودُهُۥ وَهُمۡ لَا يَشۡعُرُونَ ١٨ فَتَبَسَّمَ ضَاحِكٗا مِّن قَوۡلِهَا وَقَالَ رَبِّ أَوۡزِعۡنِيٓ أَنۡ أَشۡكُرَ نِعۡمَتَكَ ٱلَّتِيٓ أَنۡعَمۡتَ عَلَيَّ وَعَلَىٰ وَٰلِدَيَّ وَأَنۡ أَعۡمَلَ صَٰلِحٗا تَرۡضَىٰهُ وَأَدۡخِلۡنِي بِرَحۡمَتِكَ فِي عِبَادِكَ ٱلصَّٰلِحِينَ ١٩

Translation. "*Until, when they came upon the Valley of Ants, an ant said, "O ants! Go into your nests, lest Solomon and his troops crush you without noticing." He smiled and laughed at her words, and said, "My Lord, direct me to be thankful for the blessings you have bestowed upon me and upon my parents, and to do good works that please You. And admit me, by Your grace, into the company of Your virtuous servants.*"" This verse anthropomorphically depicts an ant communicating to avoid danger, teaching humility. Scientifically, ants use pheromones and tactile signals for complex communication, with specialized brain centers processing alarm signals. Their caste-based social structure further reflects organized "communities." Entomological research on ant communication and social organization supports the verse's depiction of ants as a cohesive community[22,23](Figure 12).

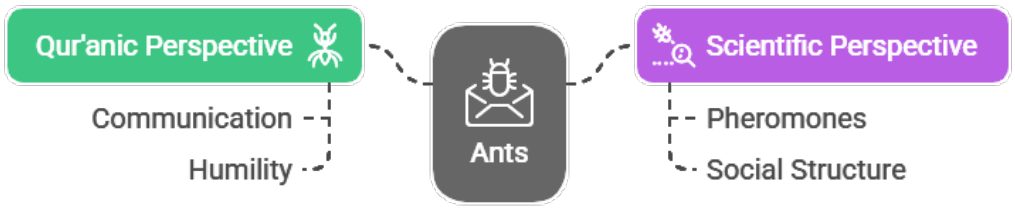

Figure 12 Ants in Quran and Science

Qur'an 29:41 – Spider

مَثَلُ ٱلَّذِينَ ٱتَّخَذُواْ مِن دُونِ ٱللَّهِ أَوۡلِيَآءَ كَمَثَلِ ٱلۡعَنكَبُوتِ ٱتَّخَذَتۡ بَيۡتٗاۖ وَإِنَّ أَوۡهَنَ ٱلۡبُيُوتِ لَبَيۡتُ ٱلۡعَنكَبُوتِۖ لَوۡ كَانُواْ يَعۡلَمُونَ ٤١

[22] Hölldobler, Bert, and Edward O. Wilson. The Ants. Cambridge, MA: Harvard University Press, 1990.

[23] Winston, Mark L. *The Biology of the Honey Bee. Cambridge*, MA: Harvard University Press, 1991.

Translation. *"The likeness of those who take to themselves protectors other than Allah is that of the spider. It builds a house. But the most fragile of houses is the spider's house. If they only knew."*

This verse uses the spider's web as a metaphor for fragile trust in false deities. Scientifically, spider silk is among the strongest natural fibers, yet webs are easily disturbed, aligning with the verse's imagery of a delicate "house." Zoological studies confirm the strength and elasticity of spider silk, adding depth to the metaphor [24].

Qur'an 22:5 – Fetal Development

يَـٰٓأَيُّهَا ٱلنَّاسُ إِن كُنتُمْ فِى رَيْبٍ مِّنَ ٱلْبَعْثِ فَإِنَّا خَلَقْنَـٰكُم مِّن تُرَابٍ ثُمَّ مِن نُّطْفَةٍ ثُمَّ مِنْ عَلَقَةٍ ثُمَّ مِن مُّضْغَةٍ مُّخَلَّقَةٍ وَغَيْرِ مُخَلَّقَةٍ لِّنُبَيِّنَ لَكُمْ ۚ وَنُقِرُّ فِى ٱلْأَرْحَامِ مَا نَشَآءُ إِلَىٰٓ أَجَلٍ مُّسَمًّى ثُمَّ نُخْرِجُكُمْ طِفْلًا ثُمَّ لِتَبْلُغُوٓا۟ أَشُدَّكُمْ ۖ وَمِنكُم مَّن يُتَوَفَّىٰ وَمِنكُم مَّن يُرَدُّ إِلَىٰٓ أَرْذَلِ ٱلْعُمُرِ لِكَيْلَا يَعْلَمَ مِنۢ بَعْدِ عِلْمٍ شَيْـًٔا ۚ وَتَرَى ٱلْأَرْضَ هَامِدَةً فَإِذَآ أَنزَلْنَا عَلَيْهَا ٱلْمَآءَ ٱهْتَزَّتْ وَرَبَتْ وَأَنۢبَتَتْ مِن كُلِّ زَوْجٍۭ بَهِيجٍ ٥

Translation. *"O people! If you are in doubt about the Resurrection—We created you from dust, then from a small drop, then from a clinging clot, then from a lump of flesh, partly developed and partly undeveloped. In order to clarify things for you. And We settle in the wombs whatever We will for a designated term, and then We bring you out as infants, until you reach your full strength. And some of you will pass away, and some of you will be returned to the vilest age, so that he may not know, after having known. And you see the earth still; but when We send down water on it, it vibrates, and swells, and grows all kinds of lovely pairs."*

This verse outlines stages of human embryonic development, from a "drop" to a "clot" to a child. While metaphorical, terms like "clot" (ʿalaqah) may describe the embryo's early appearance. Modern embryology details fertilization, cleavage, and organ formation, complementing the verse's narrative (Figure 13). The verse's stages broadly align with embryological processes, though not literal, as noted in scientific interpretations[25].

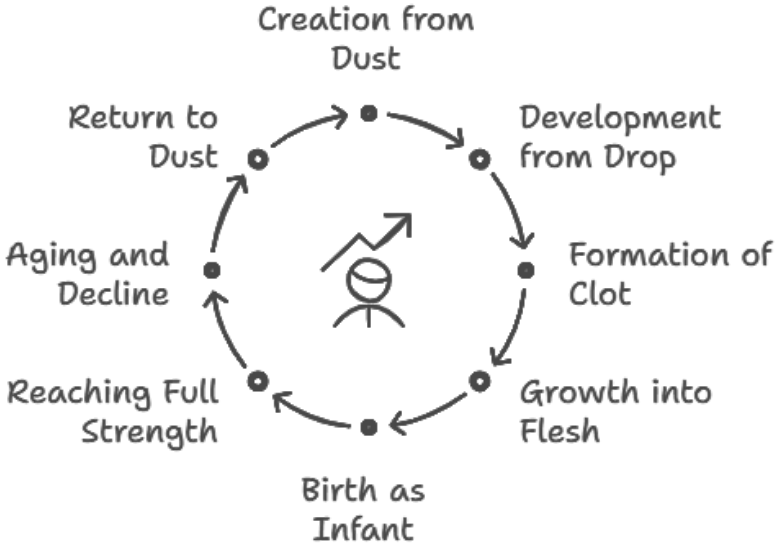

Figure 13 Cycle of Human Development

Qur'an 23:12–14 – Stages of Human Creation

[24] Syed Umer Zahid, Mahwish Batool, and Syed Aftab Alam, "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and Insights," *International Research Journal on Islamic Studies* 5, no. 2 (2023): 1–11

[25] Saadat, Saifullah. "Human Embryology and the Holy Quran: An Overview." International Quarterly Journal of Research in Education, Arts and Humanities 2, no. 4 (2011): 424–57.

وَلَقَدْ خَلَقْنَا ٱلْإِنسَـٰنَ مِن سُلَـٰلَةٍ مِّن طِينٍ ١٢ ثُمَّ جَعَلْنَـٰهُ نُطْفَةً فِى قَرَارٍ مَّكِينٍ ١٣ ثُمَّ خَلَقْنَا ٱلنُّطْفَةَ عَلَقَةً فَخَلَقْنَا ٱلْعَلَقَةَ مُضْغَةً فَخَلَقْنَا ٱلْمُضْغَةَ عِظَـٰمًا فَكَسَوْنَا ٱلْعِظَـٰمَ لَحْمًا ثُمَّ أَنشَأْنَـٰهُ خَلْقًا ءَاخَرَ ۚ فَتَبَارَكَ ٱللَّهُ أَحْسَنُ ٱلْخَـٰلِقِينَ ١٤

Translation. "*We created man from an extract of clay. Then We made him a seed, in a secure repository. Then We developed the seed into a clot. Then We developed the clot into a lump. Then We developed the lump into bones. Then We clothed the bones with flesh. Then We produced it into another creature. Most Blessed is Allah, the Best of Creators.*"

This verse details embryonic stages, from sperm to clot to flesh. While the sequence (e.g., bones before flesh) is not anatomically precise, tafsir views it as metaphorical, emphasizing divine creation. Embryology confirms stages like zygote formation and tissue differentiation. The verse's imagery reflects early embryonic development, though expressed poetically[26].

Qur'an 39:6 – Creation in Wombs

يَخْلُقُكُمْ فِى بُطُونِ أُمَّهَـٰتِكُمْ خَلْقًا مِّنۢ بَعْدِ خَلْقٍ فِى ظُلُمَـٰتٍ ثَلَـٰثٍ ۚ ذَٰلِكُمُ ٱللَّهُ رَبُّكُمْ لَهُ ٱلْمُلْكُ ۖ لَآ إِلَـٰهَ إِلَّا هُوَ ۖ فَأَنَّىٰ تُصْرَفُونَ ٦

Translation. "*He created you from one person, then made from it its mate, and brought down livestock for you—eight kinds in pairs. He creates you in the wombs of your mothers, in successive formations, in a triple darkness. Such is Allah, your Lord. His is the kingdom. There is no god but He. So what made you deviate?"*

This verse describes fetal development within "three veils of darkness," often interpreted as the abdominal wall, uterine wall, and amniotic sac. This captures the protected environment of the fetus, aligning with embryological understanding of prenatal development. The "three veils" metaphorically align with the protective layers surrounding the fetus[29].

Qur'an 76:2 – Creation from Mingled Sperm

إِنَّا خَلَقْنَا ٱلْإِنسَـٰنَ مِن نُّطْفَةٍ أَمْشَاجٍ نَّبْتَلِيهِ فَجَعَلْنَـٰهُ سَمِيعًۢا بَصِيرًا ٢

Translation. "*We created man from a liquid mixture, to test him; and We made him hearing and seeing.*"

This verse acknowledges human life beginning from mixed gametes, reflecting fertilization. Scientifically, the union of sperm and ovum forms a zygote, initiating development (Figure 14). The verse's aligns with the biological process of fertilization (Saadat, 2011)[27].

[26] Saadat, Saifullah. "Human Embryology and the Holy Quran: An Overview." International Quarterly Journal of Research in Education, Arts and Humanities 2, no. 4 (2011): 424–57.

[27] Saadat, Saifullah. "Human Embryology and the Holy Quran: An Overview." International Quarterly Journal of Research in Education, Arts and Humanities 2, no. 4 (2011): 424–57.

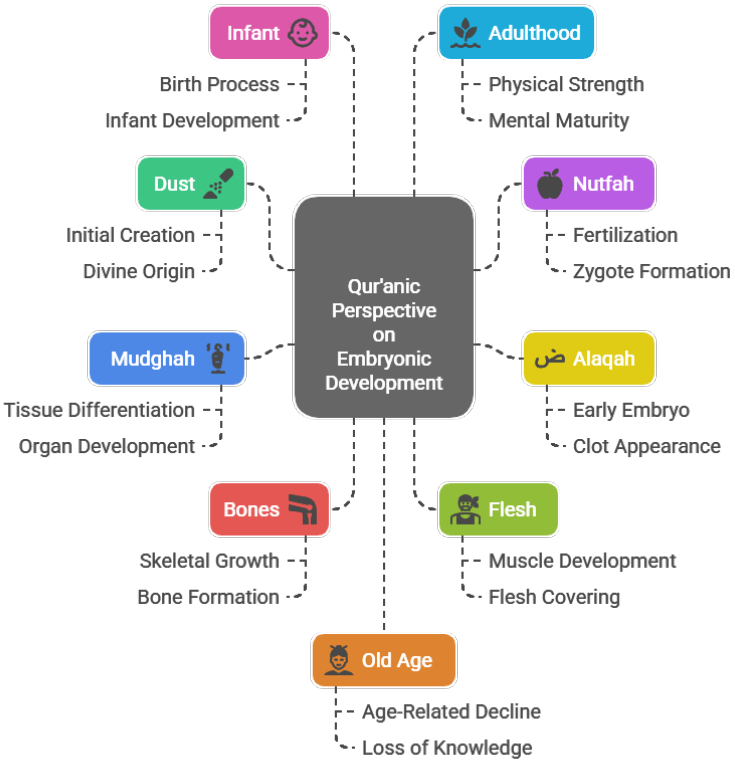

Figure 14 Quranic perspective on human embryonic development

Qur'an 2:164 – Dispersion of Creatures

إِنَّ فِى خَلْقِ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ وَٱخْتِلَٰفِ ٱلَّيْلِ وَٱلنَّهَارِ وَٱلْفُلْكِ ٱلَّتِى تَجْرِى فِى ٱلْبَحْرِ بِمَا يَنفَعُ ٱلنَّاسَ وَمَآ أَنزَلَ ٱللَّهُ مِنَ ٱلسَّمَآءِ مِن مَّآءٍ فَأَحْيَا بِهِ ٱلْأَرْضَ بَعْدَ مَوْتِهَا وَبَثَّ فِيهَا مِن كُلِّ دَآبَّةٍ وَتَصْرِيفِ ٱلرِّيَٰحِ وَٱلسَّحَابِ ٱلْمُسَخَّرِ بَيْنَ ٱلسَّمَآءِ وَٱلْأَرْضِ لَءَايَٰتٍ لِّقَوْمٍ يَعْقِلُونَ ١٦٤

Translation. "*In the creation of the heavens and the earth; in the alternation of night and day; in the ships that sail the oceans for the benefit of mankind; in the water that Allah sends down from the sky, and revives the earth with it after it had died, and scatters in it all kinds of creatures; in the changing of the winds, and the clouds disposed between the sky and the earth; are signs for people who understand.*"

This verse highlights the dispersion of "every kind of moving creature" across the earth, emphasizing biodiversity. Tafsir by Sayyid Qutb interprets this as a call to reflect on the variety of animal life, each with unique characteristics and ecological roles. Zoologically, this aligns with studies of species diversity and their adaptation to diverse environments, a cornerstone of modern ecology. The verse's focus on biodiversity resonates with zoological research on species classification and ecological niches[28].

Qur'an 42:29 – Creatures in Heavens and Earth

وَمِنْ ءَايَٰتِهِۦ خَلْقُ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ وَمَا بَثَّ فِيهِمَا مِن دَآبَّةٍ ۚ وَهُوَ عَلَىٰ جَمْعِهِمْ إِذَا يَشَآءُ قَدِيرٌ ٢٩

Translation. "*And of His signs are the creation of the heavens and the earth, and the creatures He has spread throughout them; and He is Able to gather them at will.*"

This verse emphasizes the creation and distribution of creatures across the heavens and earth, suggesting a purposeful design. Qutb's tafsir notes that each creature has a specific role, aligning with zoological studies of species' ecological functions and distribution across

[28] Qutb, Sayyid. In the Shade of the Qur'an. Vol. 5. Leicester, UK: Islamic Foundation, 2002.

ecosystems. The verse reflects the zoological principle of species distribution and ecological balance (Qutb, n.d.-b).

Qur'an 22:18 – Submission of Living Beings

أَلَمْ تَرَ أَنَّ ٱللَّهَ يَسْجُدُ لَهُۥ مَن فِى ٱلسَّمَٰوَٰتِ وَمَن فِى ٱلْأَرْضِ وَٱلشَّمْسُ وَٱلْقَمَرُ وَٱلنُّجُومُ وَٱلْجِبَالُ وَٱلشَّجَرُ وَٱلدَّوَآبُّ وَكَثِيرٌ مِّنَ ٱلنَّاسِ ۖ وَكَثِيرٌ حَقَّ عَلَيْهِ ٱلْعَذَابُ ۗ وَمَن يُهِنِ ٱللَّهُ فَمَا لَهُۥ مِن مُّكْرِمٍ ۚ إِنَّ ٱللَّهَ يَفْعَلُ مَا يَشَآءُ ۩ ١٨

Translation. "*Do you not realize that to Allah prostrates everyone in the heavens and everyone on earth, and the sun, and the moon, and the stars, and the mountains, and the trees, and the animals, and many of the people? But many are justly deserving of punishment. Whomever Allah shames, there is none to honor him. Allah does whatever He wills.*"

This verse states that all living beings submit to Allah, reflecting their natural order and behavior. Ibn Kathir's tafsir interprets this as the instinctive obedience of animals to divine laws, akin to their natural behaviors studied in zoology, such as migration or social organization. The verse aligns with zoological observations of animals' instinctual behaviors within ecosystems (Ibn Kathir, 2000).[29]

Qur'an 16:49 – Creatures' Prostration

وَلِلَّهِ يَسْجُدُ مَا فِى ٱلسَّمَٰوَٰتِ وَمَا فِى ٱلْأَرْضِ مِن دَآبَّةٍ وَٱلْمَلَٰٓئِكَةُ وَهُمْ لَا يَسْتَكْبِرُونَ ٤٩

Translation. "*To Allah bows down everything in the heavens and everything on earth—every living creature, and the angels, and without being proud.*"

Similar to 22:18, this verse highlights the submission of all creatures to Allah, interpreted as their adherence to natural instincts. Tafsir suggests this reflects the orderliness of animal behavior, which zoology studies through behavioral ecology, such as mating or foraging patterns. The verse's depiction of creatures' submission mirrors zoological studies of instinctual behaviors [30].

Qur'an 25:2 – Precise Creation

ٱلَّذِى لَهُۥ مُلْكُ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ وَلَمْ يَتَّخِذْ وَلَدًا وَلَمْ يَكُن لَّهُۥ شَرِيكٌ فِى ٱلْمُلْكِ وَخَلَقَ كُلَّ شَىْءٍ فَقَدَّرَهُۥ تَقْدِيرًا ٢

Translation. "*He to whom belongs the kingdom of the heavens and the earth, who took to Himself no son, who never had a partner in His kingship; who created everything and determined its measure.*"

This verse emphasizes Allah's precise creation of all things, including animals, each with specific characteristics. Haque and Masri link this to ecological balance, where each species has a defined role, aligning with zoological studies of species-specific adaptations (Figure 15). The verse reflects the precision of species' adaptations studied in zoology[31].

[29] Ibn Kathir, Ismail. *Tafsir Ibn Kathir. Vol. 6. Riyadh: Darussalam*, 2000.

[30] Mualimin, and Bambang Subali. "The Integration of Al-Qur'an and Hadith Studies on Biology Learning at Islamic Senior High Schools in Magelang, Indonesia." *Journal of Physics: Conference Series* 1097, no. 1 (2018): 012045.

[31] Haque, Nazmul, and Ahmad H. B. A. Masri. "The Principles of Animal Advocacy in Islam: Four Integrated Ecognitions." *Society & Animals* 19, no. 3 (2011): 279–90.

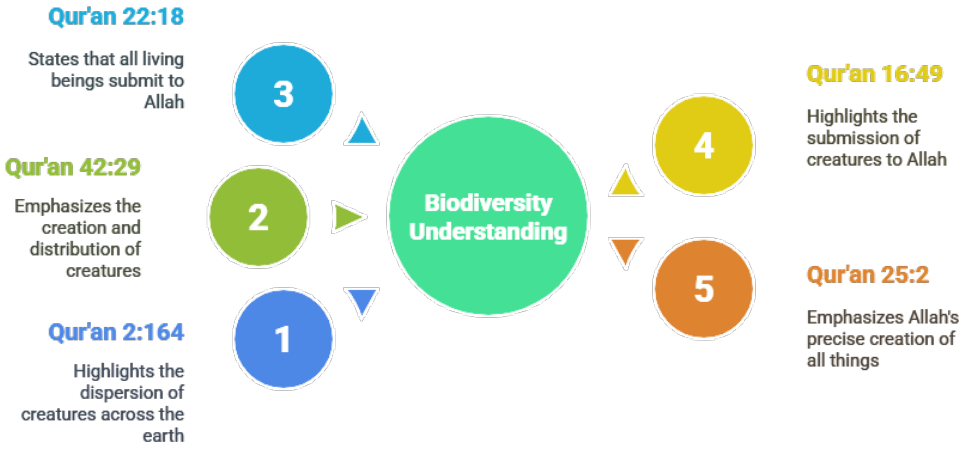

Figure 15 Understanding Biodiversity through Quranic verses

Qur'an 25:44 – Cattle Metaphor

أَمْ تَحْسَبُ أَنَّ أَكْثَرَهُمْ يَسْمَعُونَ أَوْ يَعْقِلُونَ ۚ إِنْ هُمْ إِلَّا كَٱلْأَنْعَٰمِ ۖ بَلْ هُمْ أَضَلُّ سَبِيلًا ٤٤

Translation. "*Or do you assume that most of them hear or understand? They are just like cattle, but even more errant in their way.*"

This verse uses cattle as a metaphor for human ignorance, but its reference to animals connects to biological education. Wasehudin et al. suggest that such metaphors can be used to teach biological concepts, linking Quranic fauna to zoological education. The verse's use of cattle reflects their familiarity in zoological studies of domesticated animals[32].

Qur'an 3:189 – Dominion of Creation

وَلِلَّهِ مُلْكُ ٱلسَّمَٰوَٰتِ وَٱلْأَرْضِ ۗ وَٱللَّهُ عَلَىٰ كُلِّ شَىْءٍ قَدِيرٌ ١٨٩

Translation. "*To Allah belongs the sovereignty of the heavens and the earth. Allah has power over all things.*"

While general, this verse implies Allah's control over all creation, including animals. Farida et al. (2022) interpret this as correlating science and theology, suggesting that animals' roles in creation can be studied zoologically to understand divine wisdom. The verse indirectly supports zoological exploration of animal roles within ecosystems [33].

Qur'an 17:70 – Honor of Humans

وَلَقَدْ كَرَّمْنَا بَنِىٓ ءَادَمَ وَحَمَلْنَٰهُمْ فِى ٱلْبَرِّ وَٱلْبَحْرِ وَرَزَقْنَٰهُم مِّنَ ٱلطَّيِّبَٰتِ وَفَضَّلْنَٰهُمْ عَلَىٰ كَثِيرٍ مِّمَّنْ خَلَقْنَا تَفْضِيلًا ٧٠

Translation. *"We have honored the Children of Adam, and carried them on land and sea, and provided them with good things, and greatly favored them over many of those We created."*

This verse highlights human superiority over many creatures, implying a hierarchy in creation. Al-Qurtubi's tafsir notes that animals, like livestock, serve humans, aligning with zoological studies of domestication and human-animal interactions (Figure 16). The verse reflects the zoological perspective on human-animal relationships, particularly in domestication (Al-Qurtubi, 2004).

[32] Wasehudin, W., D. Syah, M. T. Rahman, and U. Hasanah. "Developing Class Instruction for Linking the Qur'an to Biological Science." *Al-Ishlah: Jurnal Pendidikan* 14, no. 3 (2022): 1–10.

[33] Farida, Ulfa, Dwi Indah Ayu Putra, Yuni Wardani, Abdurrahman Kasdi, and Siti Mujibatun. "Correlation of Science and Theology According to the Qur'an and Hadith." *European Journal of Science and Theology* 18, no. 5 (2022): 65–76.

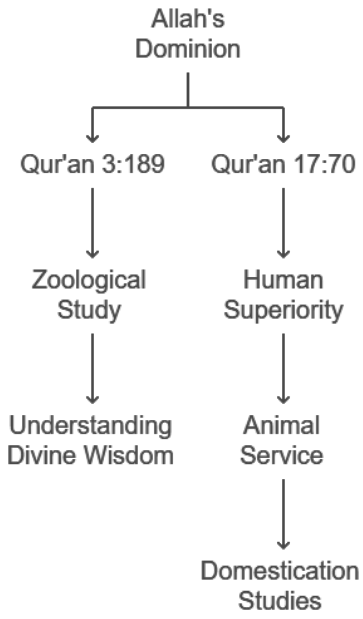

Figure 16 Islamic perspective on creation and Human role

Table 1 Summary Table of Verses and Zoological Insights

Quranic Verse	**Key Theme**	**Zoological Alignment**	**Source**
6:38	Animal communities	Social structures in species	Zahid et al. (2023)
16:5–8	Domestic animals	Domestication benefits	Zahid et al. (2023)
16:68–69	Honeybees	Bee behavior and honey properties	Nour El-Din & Hamada (2011)
24:45	Origin from water	Aquatic origin of life	Zahid et al. (2023)
31:10	Biodiversity and rain	Ecosystem sustenance	Zahid et al. (2023)
51:49	Pairs in creation	Sexual reproduction	Zahid et al. (2023)
21:30	Water as life source	Aquatic origin hypothesis	Zahid et al. (2023)
36:36	Creation in pairs	Sexual dimorphism	Zahid et al. (2023)
16:66	Milk production	Lactation physiology	Zahid et al. (2023)
11:6	Provision for creatures	Ecological niches	Zahid et al. (2023)
27:18–19	Ant communication	Entomological social behavior	Zahid et al. (2023)
29:41	Spider web	Silk strength and ecology	Zahid et al. (2023)
22:5	Fetal development	Embryological stages	Saadat (2011)
23:12–14	Embryonic stages	Embryology metaphors	Saadat (2011)
39:6	Fetal protection	Prenatal development	Saadat (2011)
76:2	Fertilization	Gamete union	Saadat (2011)
2:164	Biodiversity	Species diversity	Qutb (n.d.-a)
42:29	Creature distribution	Ecological roles	Qutb (n.d.-b)
22:18	Animal submission	Behavioral ecology	Ibn Kathir (2000)
16:49	Creature prostration	Instinctual behavior	Mualimin & Subali (2018.)

25:2	Precise creation	Species adaptations	Haque and Masri (2011)
25:44	Cattle metaphor	Biological education	Wasehudin et al. (2022)
3:189	Creation dominion	Animal roles	Farida et al. (2022)
17:70	Human-animal hierarchy	Domestication	Al-Qurtubi (2004)

Conclusion

This study demonstrates that Qur'anic references to animal life can be meaningfully integrated with contemporary zoological knowledge within Islamic Religious Education (PAI) and integrated science learning in Islamic schools and madrasas. The main contribution of the study is not to establish the Qur'an as a scientific textbook or to use modern zoology as a means of validating Qur'anic revelation. Rather, the study shows how Qur'anic teachings can provide ethical, spiritual, and reflective dimensions to the study of zoological phenomena.

The proposed integration can be implemented through contextual teaching materials, inquiry-based learning, project-based learning, collaborative learning, and interdisciplinary cooperation between PAI and science teachers. Topics such as animal communities, honeybee behavior, biodiversity, domestication, ecological relationships, and animal–human interactions can be used to connect scientific concepts with Islamic values such as gratitude, stewardship, responsibility, cooperation, and respect for creation.

Therefore, Qur'an–zoology integration offers a potential framework for strengthening contextual and value-oriented PAI in Islamic schools and madrasas. Future research should move beyond conceptual analysis by developing, implementing, and empirically evaluating Qur'an-integrated teaching materials and learning strategies in actual PAI and biology classrooms. Such studies could examine their effects on students' scientific literacy, religious understanding, environmental awareness, and ethical attitudes toward animals and the natural environment.

Authors Contribution

HAM: Led the conceptualization and design of the study, performed in-depth analysis of Qur'anic verses related to animal life, and provided primary theological interpretations by synthesizing classical and contemporary tafsīr sources. HAM also coordinated the integration of interdisciplinary perspectives and contributed significantly to drafting the introduction and discussion sections.

MAD: Played a pivotal role in bridging scientific and theological frameworks, conducted extensive reviews of zoological literature to identify parallels with Qur'anic descriptions, and provided critical revisions to ensure academic rigor in the manuscript. MAD also contributed to structuring the methodology and editing the final draft.

MNK: Focused on the selection and interpretation of Qur'anic verses, emphasizing their spiritual and ethical dimensions, and ensured theological accuracy through rigorous review.

AT: Conducted literature reviews on zoological studies, synthesized scientific data with Qur'anic references, and assisted in developing the methodology section.

ARZ: Supervised the overall research process, provided expert insights into the science-religion dialogue, and contributed to the final editing and synthesis of the manuscript.

AUR: Supported data collection by sourcing peer-reviewed zoological studies and contributed to the results and discussion sections.

Conflict of interest

All authors declare that there is no conflict of interest regarding the publication of the article.

References

Al-Qurtubi, Abu Abd Allah Muhammad. 2004. *Al-Jami' li Ahkam al-Qur'an*. Vol. 5. Beirut: Dar al-Kutub al-Ilmiyah.

Cavalier-Smith, T. 2006. "Rooting the Tree of Life by Transition Analyses." *Biology Direct* 1, no. 19: 1–51, https://doi.org/10.1186/1745-6150-1-19, accessed 3 Jul 2025.

Farida, Ulfa, Dwi Indah Ayu Putra, Yuni Wardani, Abdurrahman Kasdi, and Siti Mujibatun. 2022. "Correlation of Science and Theology According to the Qur'an and Hadith." *European Journal of Science and Theology* 18, no. 5: 65–76.

Haque, Nazmul, and Ahmad H. B. A. Masri. 2011. "The Principles of Animal Advocacy in Islam: Four Integrated Ecognitions." *Society & Animals* 19, no. 3: 279–90.

Hölldobler, Bert, and Edward O. Wilson. 1990. *The Ants*. Cambridge, MA: Harvard University Press.

Ibn Kathir, Ismail. 2000. *Tafsir Ibn Kathir*. Vol. 6. Riyadh: Darussalam.

Librado, P., N. Khan, A. Fages, et al. 2021. "The Origins and Spread of Domestic Horses from the Western Eurasian Steppes." *Nature* 598, no. 7882: 634–640, https://doi.org/10.1038/s41586-021-04018-9, accessed 3 Jul 2025.

Mualimin, and Bambang Subali. 2018. "The Integration of Al-Qur'an and Hadith Studies on Biology Learning at Islamic Senior High Schools in Magelang, Indonesia." *Journal of Physics: Conference Series* 1097, no. 1: 012045, https://doi.org/10.1088/1742-6596/1097/1/012045, accessed 3 Jul 2025.

Munawar, Sarah. 2025. "Exploring Scientific Exegesis (Al-Tafsīr al-ʿIlmī) of the Qur'an: Merits, Challenges, and Interpretive Boundaries." *Journal of Religion & Society* 3, no. 2: 414–23.

Nizamani, Nazir, Naeem Arain, Noor S. Ilyas, Ali Mehar, Amna Bibi, and Lubna Riaz. 2024. "Examining the Quranic Viewpoint on Fauna and Zoology: An Extensive Analysis of Facts and Insights." *History of Medicine* 10, no. 2: 1073–83.

Nour El-Din, M. M., and F. M. Hamada. 2011. "Honey: Its Medicinal Property and Antibacterial Activity." *Asian Pacific Journal of Tropical Biomedicine* 1, no. 2: 154–60, https://doi.org/10.1016/S2221-1691(11)60016-X, accessed 3 Jul 2025.

Qutb, Sayyid. 2002. *In the Shade of the Qur'an*. Vol. 5. Leicester, UK: Islamic Foundation.

Qutb, Sayyid. 2008. *In the Shade of the Qur'an*. Vol. 15. Leicester, UK: Islamic Foundation.

Saadat, Saifullah. 2011. "Human Embryology and the Holy Quran: An Overview." *International Quarterly Journal of Research in Education, Arts and Humanities* 2, no. 4: 424–57.

Seeley, Thomas D. 2010. *Honeybee Democracy*. Princeton, NJ: Princeton University Press.

Shazia, Sumaira, and Amna Bibi. 2024. "A Research Review of the Animals Mentioned in the Holy Quran and Their Effects on Human Life." *Al-Anfal* 2, no. 4: 129–45.

Tlili, Sarra. 2012. *Animals in the Qur'an*. Cambridge: Cambridge University Press.

Wasehudin, W., D. Syah, M. T. Rahman, and U. Hasanah. 2022. "Developing Class Instruction for Linking the Qur'an to Biological Science." *Al-Ishlah: Jurnal Pendidikan* 14, no. 3: 1–10, https://doi.org/10.35445/alishlah.v14i3.1662, accessed 3 Jul 2025.

Winston, Mark L. 1991. *The Biology of the Honey Bee*. Cambridge, MA: Harvard University Press.

Zahid, Syed Umer, Mahwish Batool, and Syed Aftab Alam. 2023. "Exploring the Quranic Perspective on Animals and Zoology: A Comprehensive Study of Knowledge and

Insights." *International Research Journal on Islamic Studies* 5, no. 2: 1–11, https://doi.org/10.54262/irjis.05.02.e01, accessed 3 Jul 2025.